FERRANT

NEWS IN BRIEF

Norsk wins **USAF** contract

THE contract to supply minicomputers for the US F16 fighter simulator has been won by Norsk Dato of Norway (CWI, November 10). Under an \$8 million contract the minis will be supplied to Singer's Marine end Aerospace Division, which is building 18 simulators, each with four Nord 50 32-bit processors and a Nord 10/S front-

The contract went to Norsk Date because the company is the only one with a 32-bit mini capable of running under the same operating software as the 16-bit front-end mini.This operating system is Norsk Data's Sintran

Philips launch

TWO amall business computers, the 330 and the 430, have been announced by Philips in the US. They have not yet been announced in Europe.

Brian Long to take 500 reply to Cobol to Cobol Survey and the delivery stage OVER at Honeywell Survey order has reached the delivery order has reached the delivery stage with the installation of a survey order has reached the delivery order has reached the delivery

Honeyweil Level 66 at the Huntingdon headquarters of the Anauthority ordered the system sfter a year of wavering between Honeywell and ICL (CW, April

Train death

THE Inquest on Warwick University computer acience lecturer Ronald Footitt, 30 of Whitnash, Lesmington Spa, wes adjourned until a date to be fixed. His body was found south of Kilsby tunnel, Northants, on the main Euston-Birmingham railway line. He leaves s wife end a young son.

honour Henderson's commitment when he arrived last January to name a Briton ss his SUCCESSO The UK company has been restructured along product rather than geographic lines, and sales and support staff will be much more specialised than

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previously in terms of product.

lt is planned to run incoterm independently to start with, years. once the sequisition is complete.
The UK Incoterm company has about 75 people, mainly in salea.

Honeywell has put in for a Queen's Award for export achievement.

decision to build Lavel se in. France would not adversely affect the large systems factory at Newhouse, Scotland, Henderson told Computer Weekly that of the 50 to 55 Level 66 machines built at Newhouse in the current year, only 10 or 12 had gone to CII-HB. "The remainder have gone to the UK, Italian and subsidlary markets like Iran and Yugoslavia," he ssld. "We are likely to make a firm decision to build Level 6 minis

The new Data Processing Division embraces Level 66 and the whole of the Xerox base of 40 customers. The General Systems Division takes in Level 64, Level 62 and the small amount of ousiness still done on Level 61. The Minicomputer-Terminals Division covers Level 6 and the erminal business.

Series 1 net for food group A MAJOR IBM user, Internetlowarehouses, which supply most

nel Stores, is to instell a network goods to their local retall outlets. to its central IBM 370/145 et Swanley, Kenl. Altergöhas been contracted to write the software for at least the initial order processing aystem.

The Series is will be installed at the company's five major

the initial system, ordars from the branches will be Input to the appropriate Saries I which will issue a picking note siding warehouse staff to collect the stock, and a charging note to

at Newhouse next yeor, and I

don't believe that the French

decision will have any effect on

output from the Scottish factory for the rest of the life of Lavel

The successor line to Level 66

likely to begin sppearing in

Honeywell's UK busineas Is

Honeywell has put in for a

now over £50 million a year, and the plan is to double this in four

the early 1980s.

the retailer. The elteration in the stock at that depot will also be recorded

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'Plan now for the future impact of technology' call

THE need to plan for the future impact of technology before it is too late was emphasised last week by Earl Joseph, staff scientist and futurologist at Univac, and consultant lann

Speaking et an Infotech seminsr entitled "Pisming for Tomorrow's Technologies," Joseph highlighted education, health services and the effect on work stylea as three areas where information technology will have a major impact. while Barron relterated his Hedsor Park call for a Minister of Information Technology.

"Schools are very slow to Implement new Ideas," Joseph said. "One of the high risk routes for them to follow in the future is to assume that education will be delivered the same way as it is today. But you do not need to teach in a school building.

"Instead you can set up a system through com-

A MAJOR reorganisation of

Long has been appointed de-

house, and the cost will be significantly less than it is ot the moment

"Also, there is the possibility of having robotic teachers. We know enough to do that, but we now have to create the software. What would it mstter if the teacher was a 3D lmage, like a hologram?"

Joseph also looked to the future to supply personalised, wearable computing mac-

"What about a hospital-less health system?" he said. "We could have a personalised computer wristwatch that can take your pulse and monitor and release chemicals into your bloodstream. We already know how to do that."

in the past, major technological changes and their impact on society did not happen quickly, but Joseph believes that this is no longer the case. He sees the rapid changes in

society, observable In our own lifetime, as a real turning point. The need to prepare for rapid technological changea was the main theme of lann Barron's

"We must have policies before decisions are taken-or are made for us," said Barron, in calling for the development of national policies to cover the whole range of social, economic, political and industriel areas affected by the impact of Information techno-

He also said that the "csil for action" for the development of such policies which followed the ACM/Computer Weekly conference "Csn computera save Briteln?" (CW, July 14) should be headed by the computer community and that the action should not be delayed too long - or it might be too

• A team of forecasters at the Henley Research Centre has



Earl Joseph . . . possibility

produced a report celled "2002: Britain Plus 25" which looks to the future shape of society including the effects of the computer / communications

It predicts that the average household of the future will rely on computer-based appli-*2002: Britain Plus 25, The Henley

the UK, on behalf of the EEC.

the problems of portability.

Centre for Forecasting, 22 St John's Square, London, pp184, £30 or £25 to subscribers.

Existence of the Ordeke

A GOOD response has been reported by the National Computing Centre to its efforts to obtain a picture of Cubol use in Out of 2,000 questionnaires on

Iltigation.
Complicating Katzenica The survey is being organised by a sub-group of the EEC's working group on standards, which is investigating the need for Cobol standerdisation and the problems of near the cornorality. Germeny and the Republic of

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MODULAR TECHNOLOGY P.O.Box 117, Walford, Harn, Wolfing

From Hesh Wiener In N

EVIDENCE has emerged in the US that Nicholas Kalzenhy IBM's general counseland 137 president of the corporate was informed of the last tigetion that led to the fo government's enti-trest to age inst IBM as early as 194 over four years before the E government sctually fiel for

At the time he was mit aware of the investigation Katzenbach was Deputy in ney General of the US.

Evidence that Katzenbur was elerted to the investigais in a memo sent to hist William H. Orrick, who wasthead of the Justice Depr ment's Anti-trust Division.

sheds new light on the recur question of Katzenbach's sible conflict of interest, to flict that the attorney has existently and steadfastly dens Any proven conflict covil

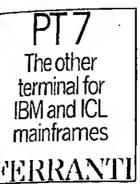
violation of the code of w ethics and US law. It co Interfere with the conduct:" government's sntl-irus which is now in proj-Cobol use sent out to Instal- Katzenbsch was hired to lations, over 500 have already on IBM's defence by

work for the corporation The questionnaire has already November, 1964. Kalzents: been circulated in France, West finnly joined IBM in Jane 1969, within days of the file; the government enti-Instal

manufecturer, or includes a number of different

company outside the USA.

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Number 578

Cossor wins Lords order

Briefing

THE House of Lords library has placed a £60,000 order for a Raytheon Cossnr PTS 1020 terminal system for use in extension of the library's pilnt information retrieval project.

The terminals will be used in accessing information such as registers of procedural pre-celeats and titles of Acts of Parlament. The seven-terminol system will be Installed during the Christmas recess, and will be linked to an IBM 370/158 at the Greater London Council, which is now negotiating an extension ion one-year contract for providing the Lords with computer power | CW. March 11, 1976).

IBM prices up

RENTAL and lease prices in the US for some older IBM products will go up by about 5% in the spring. An IBM spokesman could not say at this stage whother the increases will also apply in Europe and the UK. freducts affected include Sysi in 32, System 7 and some m-fels of the System 3 range.

first bubbles

US sources suggest that the first IBM computers incorporating bubble memory will be the System 36 and System 38 scheduled for introduction early next year as replacements for the System 3/12 and 3/15. They will be developments of the System 34 transaction processing system.

Takeover

A LEADING US manufacturer of video based word processing systems, the Lexitron Corp of Chatsworth, Callfornia, is being acquired by the Raytheon Com-pany. US parent of Raytheon Cossor. The UK firm is unable to say yet when it will start selling Lexitron products in Europe.

'Amicable' split

COMPELEC Electronics' mariging director, Martin Underword, has quit, in a split that has been formed "amicable." His 22 per cent stake in the company has been purchased by the maanny shareholders. Roderick Versluys has taken over as acmanaging director, until a fall-thne successor is appointed.

32-bit challengers

FOLLOWING the announcement of the VAX-It/780 by Digital Equipment (CW, Ocper 27). Data General is ex-perted in hring out its own 32-bit thallenge early next year. At about the same time, the esta-bished 32-bit mini hullder, Sys-tems From common Laboratories tems Engineering Laboratories. will launch a range of 32-bit machines priced significantly below against models. bylow existing models.

Norwegian net

DESIGN of IRM Series I software for International Stores (CW, November 24) is not the in Series I project galried by Allergo. The consultancy balrady working on a Series 1 word processing network for an thrained user in Norway!



Cautiously Prince Cheries tries his hand with a light pen on a graphics terminal linked to the ISM 370/158 at Lloyds Register of Shipping. Ouring his visit to Lloyds the Prince experimented with the interactive graphics system which is used for appraising ship structures. With the light pen a surveyor can make changes to a three-dimensional display of a plan which can be shown in any state. plan which can be shown in any plans

Auld, one of the original direc-

tors of the Honeywell time sharing service in the UK. For

the last four years he has been

working in the United States, for

most of the time as vice-

president marketing and sales with the Rapidato time sharing

CRC's time sharing bureau

service. Cybernet, is used all

over the UK and siso on the

A Fujitsu spokesman in

Californie declined comment on

might find other US outlets for

the machines it builds below the

leb Danny Kopao reports:

MIDLANDS JOBS PAGES 24-27 APPOINTMENTS PAGES 24-47

level of Amdahl'a 470V/5.

CRC chiefs resign

TWO of the top men in the CRC Group, managing director Barry Quirke, and his deputy, Rod Pearson, have resigned from the company following a board

meeting on November 22. Earlier this year CRC was taken over by the giant French bureau, Générale de Service Informatique (CW, June 9). A statement from the company said that GSI disagreed with Quirke and Pearson's style of

The men taking over as ma-

New Japan challenge to IBM ANOTHER Japanese mainframe Hitachi supplies Itel; and Fujitsu

bureau.

manufacturer is seeking to enter is linked with Amdahi.
the US market with IBM-plug-comparible CPUs. A spokesman California declined com for OPM Leasing Services of the possibility that his company New York confirmed to Computer Weekly that OPM is talking with a Jepanese manufocturer but declined to nama it.

C Us similar to IBM's 370 line

COMPUTER WEEKLY'S INSIDE NEWS OFFICE VIEW There is much speculation about the office of the future and elec-tronic systems that if will contain. one system that is likely to riley a prominent role is Vidwidata, the information service developed by the Post Office. Sam Fedida, of the corporation a computer research epplications division, describes the estrices that could be growledd.

MACHINE VICTORY Wantsy heve a long way to go vet before we get to the era of blinking machines, but yorna attenty pro-

Page 20

grees has been made in the world of ALSO. computer chess in Seattle in Oc-tober, international Messer David muddje Focus on DP Ni salaries Levy was beaten by CHESS 4,6 and by DUCHESS, in a Guest

Paga 14 THE DATA COLLECTION The growing collection of data about people to serve the alleged needs of complex modern acciety presents many deopers to the individual Patricle Hewitt, of the Nestonal Council for Civil Liberties looks at what she delle the investor of privacy.

Computer view

Three-second scanner ing star of hobby Gilb's Mythodology Puzzier Softwere File Programmer Notes People in the News Micro naws Letters to the Editor Beriel leads way with 2950 European privacy lew sim

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Plato to aid South African blacks

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DESPITE a corporate decision to suspend new president Roger Wheeler investment in South Africa, Control Data is planning to set up its Plato computer assisted instructraining for blacks," sald Wheeler. "The service tion system there as a training service for blacks, would be available to businesses, too, but this ond subsidised by the South African Government would be a secondary activity and revenue from it would help subsidise the primory service."

CDC is currently sounding our government, husinesses and church organisations in South Africa sbuut the possibility of funding the project on a consortium basis. After 18 months talking there has been a government of interest by

"The prime aim would be remedial and skill

there has been a general expression of interest by will "not enlarge its holdings" in South Africa the Snuth African government but no firm com- because of the government's clampdown on black

A. Oak

 $(-A_{\mathcal{F}_{\mathbf{k}}^{\mathsf{T}}}(1), f_{\mathcal{F}_{\mathbf{k}}^{\mathsf{T}}}^{\mathsf{T}}(1))),$

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tha service you havo received

trom computar recruitment consultancies? Computar.

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to find out your views on tha

job hunting scsna. Page 15

Below has a presentative for the present

AN Interactive graphics system for connection to its 370 main

frames has been nanounced by

IBM. Called the 3250, o system

with four display stations would

cost about £130,500. First

shipments are due in the last quarter of 1978.

370 connection

mitment, according to Control Data vice- newspapers and black leaders. £50m boost for micro industry

Thursday, December 1, 1977

THE Department of Industry will announce proposals enrig in the New Year for investing a total of £50 million in the British microelectrunics industry over the next five years. A number of investment programmes are being considered but the final details will not be decided for a few months, although the Dol is keen to net quickly to stave off competition from similar

scheme for the total electronic

components industry, ann-

ounced carlier this year. The

final total is likely to include this

As the details of the pro-

grammes have still to be final-

ised and cleared, it is not yet

certsin whether they will follow

the same pattern as this earlier

support, requiring any company

seeking an investment to put in

at least the same amount again.

The spokesman sald that the

Department recognised the fact

that the industry could have

problems in finding its share, so

the degree of partial funding had

in the microcomputer field.

Plessey is centring its operations

still be be decided.

Turn to page 14

European investment programmes. Though The policy has not sums to microelectronics as part heen finalised, it is clear that one of the £20 million support of its probable results would be increased pressure for bringing together the interoelectronics activities of the three main British beneficinries of such support: Plessey, Ferranti and

For it is likely that the Dol will seek close cooperation between any companies in which money is invested.

Two main programmes are

under consideration. The first, thought by the Dol to be the more urgent, will cover buth the manufacturing and applications of microelectronics and large-scale integration technologies in the UK. Both indigenous and foreign-owned companies will be eligible, the main criterion being that an investment makes Industrial

The aecond programme will take a broad approach to the application of microprocessors and microcomputers.

The need for urgency that the Department must feel can be gauged from the recent Investments announced by the French and German governments for similar support programmes. Each country is prepared to apand an equivalent of £50 million over five years.

The Dol spokesman stated that its own programs would be comparable to these. Il scems prnhahls, however, that the ac-Nippon Electric has also been tual support will be lass than urer but declined to nama it.

Only Fujitsu and Hitachi build named as a possible new con-this, as the Department has alternated to the market.

The legical control of the market control of the market control of the market.

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Eventhe best project teams meet problems. Ours are eas likely to than most But If they do, we'll know it. We'll face il honestly. And reset quickly. It's one of our ways of ensuring their we deliver what we

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Laur Punter complaint

'test of CSA code'

COMPUTER WEEKLY

Thursday, Decembar 1, 1977

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COMPUTERVIEW

union officials, city financiers, businessmen and others who have their linnds on the levers of power prefer simplicity to sub-

They seem to understand only the simplest of equations. Like the fact that hardware production, be it of motor cars or computers, equals more employment, equals increased prosperity. Hardware is tangible and easy to understand, but it is far more difficult to get to grips with concepts like softwhre or

Last week, Computer Weekly revealed that some of the discussions of the mannower subcommittee of the Neddy computer sector working party actually involved criticisms from some quarters of the British services industry – because systems houses are doing too much work on foreign machines.

Fortunately, there has been sufficient opposition to some of the more extreme suggestions discussed by the sub-committee to wnter down the criticisms before the report is made public.

Yet the mere fact that this type of discussion can take place on a body almed at boosting the British computer Industry is s sign of the trouble that we are in.

The work of the manpower sub-committee in fact highlights the sorry state of any national policy towards information technology

Neddy is just one of a number of bodies involved in some way or other in looking at the information technology industry. Other bodies include the Department of Industry: Science Research Council: Nutional Committee on Computer Networks; Computers, Systems and Electronics Requirements Board: National Enterprise

Some of the work of some of these bodies is far-sighted and relevant. The Neddy mnnpower sub-committee, for example, will be making some valunble recommendations regarding investment in training and developing computing man-

The lack of co-ordination between these groups, however, means that even the good work is dissipated while the strong political forces - nationalism, protectionism, short-term mass ob preservation, etc - can play an unduly prominent role in final decision-making. At the Hedsor Park con-

ference (CW, July 14), one of the strongest messages to emerge was the call for a policy - ony policy - towards the information technology industry and the impact of information tech-

However, the disarray of the current situation was Illustrated

Neddy fiddles while **British software burns**

tend its procurement policy to

The government explicitly excludes machines smaller than the ICL 2960 from preferential procurement. Coupled with the tight constraints on public expenditure, this policy is now stimulating the move away from ICL mainframes at some universities, although ICL at present is the only hardware company receiving any official "protection".

It is becoming increasingly urgent that sensible national policies are developed for the information technology industry. And such policies must go beyond anything that seems to be in the government pipeline at present, such as the support for the microelectronics in-

dustry (front page). The policies should relate to n clear-sighted perception of the future and open-minded understanding of the technological and social realities of today.

Of course, these policies should include support for British industry and British manpower. But such support should include a strong bias to assisting those areas in which we have a worldwide lead, such ns software and systems expertise, and to the stimulation of the advanced use of computers.

An inevitable by product of this type of policy would be the growth of British-based manufacturing, support and service facilities by both British and 'foreign" manufacturers.

Specific support for Britishowned companies should be a part of the policy, either in the form of specifically funded projects or limited development contracts. Any attempt to provide 8 more protected home market, however, would be counter-productive.

Becoming a worldwide manufacturing company inevitably means establishing manufacside the UK. ICL, for example, will only be taken seriously as a European compony when it starts making systems on the other side of the channel. But would the British unions allow

For software compnules, expansion now means growth outside Britain, and that growth nevitably means the export of British penple, many of whom

That is why the document power sub-committee criticising the "loreign" orientation of the near relegation of the DPM British software business is so CUYB points out that in 1072, a

It is a fact of computing life

that US-owned companies rule the hardware world. Even the Japanese and Communist coantries are making IBM look-Britain, however, could have a unique and powerful world role

ation of high quality people and the right untive language. Unless Britnin can provide an environment which promotes the growth and development of international software skills with sufficient financial Incentive to encourage people to stay in Britain, the British computing

Industry will be heading for dis-

in software. It has the combin-

Although Gentf Gross critielsed production workers when he left the cumpany, the future of the 2900 depends more on the success of the VME/B and K software rather than on the maunincturing capability. There are already a lurge

number of British software

exiles throughout the world -

nenple who say, "I would prefer to live in Britain hut . . . In terms of quantity, this number is small compared to the manufacturing workforce. In terms of Importance, however, they represent the draining of our computing life force.

pnttern of pay. The ar.

Ten

years

COMPUTER WEEKLY

NOVEMBER 30, 156

PRIME Minister Hered Wise ctained that the Labourgers mant had a await the British computer Industry too Hered with the Americast, with would have happened he is ctared, after "a few more well of Tory rule".

Projects scheme, said thing.
The industry's lock of sure.

money to support the price was also a problem.

new model 7000 uses a scanning technique

different from the company's 5005 and 1010

scanners and reduces the scanning time

The 7000 was developed by EMI's US

subsidiary, EMI Medical Inc. It is being

shown to the medical world at the Radio-

logical Society of North America exhibition

in Chicago.
Like the 5005 general purpose body scan-

from 20 to three seconds.

for more

postcode

translators

FOUR postcode translators have

now been delivered by Sperry

Gyroscope for use in the Post

tiffice's Mechanised Letter Off-

ices, and the company has

nerived a further £1 million

The translator consists of it

minicomputer and associated

electronics linked to a Sperry

magnetic drum on which is

stored a dictionary of postcodes.

The operator types in the postcode, this is checked against the

dram dictionary and the appro-

priate code of phosper dots is

printed on the letter. At the

receiving mechanised office, n

reverse process causes the let-

ters to be sorted into delivery

Sperry at Plymouth. The minis

The translators are built by

are liewlett-Packard 21MX

machines. For the next

equipment, the Post Office is

considering systems using nil-

cros rather than minls, and an

sorting

contract for nine more.

DATA processing management Is among the best established when it comes to costing exercises. In fact the average DPM has few equals when It comes to whiling away the hours closeted with a desk calculator and sundry manufacturers' specification

While other company mnnagers relish their Pirelli calendars, the DPM prefers his dates unadulternted. The BASF graphics or Computer World rade designs are deviation enough. When it comes to evaluating between display units or software packages, the DPM normally has more than sufficlent statistics to hand.

It could, however, be that this dedication to DP facts and figures has unfortunate repercussions. While he may be well versed in negotiating financia leases, site insurance and operational budgets, he has overlooked his own fortunes When it comes to organising his own pay, the DPM is in the also-rnn class. Not only is he running a losing race with nnn DP mnnagement; he is even trilling in the DP field.

Recent highly relevant figures produced by the ever faithful and diligent Computer Users' Year Book should have made DPMs look up from their sliderules. It did not take much reading hetween the lines in get the pay message. Salnry increases over the past five years show that the average computer operator is top of the league, at 172%, and bottom of the table nt 78% is the DP mannger.

To emphasise the decline and

DPM on average earned over three times as much as a computer operator. This year he now receives twice the pay of an

Given similar rate of deflation. the DPM now can confidently expect to be overtaken in the not

apply for the next Honcywell operators training course.

Weber salary survey for OF :: (until June this year), to that while the average to increase for installation was 5.4%, that for DP nagement soared to 11\$ 1. way can all US DP moras responsible for jumbo Its UK counterpart

much dedication to graf evaluation rather that the chillenge and m muking a few decisionsc to keep up with the time

supercomputers. Mayter: company management r. US is more enlightened Or musbe UK DP cu: get what they deserve

alimitative storage technology, tkely to be solid state, rather Midland orders Arbat

Swift system Peripherals at cash and carry price A BREAKTHROUGH Into the using IBM 3270 terminal major league of UK clearing banks has been made by Citybased systems house Arbat.

The Midland Bank has ordered the Arbat Swift Interface watem for its international div-Ision currently equipped with Burroughs' B7 SID.

The new system will run on Iwin Digital Equipment PDP. tt/60 minls, each with 96Kwords of store. The minls will be supplied by Arbat along with its own proprietary AIMS operating system and software.

The 11/80s will Interface with two IBM 370/145 mainframes, position.

Discounts offer for students

rered to aecondary and higher education eatablishments at discount rates by the London bureau RTZ Computer Services. The company is offering Basic and Fortran for students learning programming, and two financial modelling Systems, Financial Planning Simulator and Money and Profit

ORF details have emerged on

revamped Honeywell Level Multics line, announced in the US last week and due in urope next year.

2.3 and 4 are 55 per cent, 285 per

Swift solutions for US banks including Security Pacific in

A Midland spokesman told

Computer Weekly that the Ar-bat systems would replace the B7 S1Ds, and that it was chosen

because it was available im Arhat, which has supplied New York and Chemical Bank at several European locations, believes that several major banks

are looking for second generation high-capacity Swift access systems, and that the Im-mediate availability of the Swift Alidiand Bank International's solution puts Arbat in a strong

> rates will be available at off peak times. These are before 10am, after 6pm, and at The mova into this market follows inquiries from colleges and universities as far away as Scotland. The service will be offered to univarsities, colleges and selected big comprehensly

Educational users do not hova to pay o signing-on fae or a schoola. It is seen as specially auitable for students and classas doing short term projects.

More power to Multics line

The smallest of the four syatems, the 6g/DPS Leval 1 is claimed to offer 25 per cent bet-ler performance than IBM's 3031, and n 15 per cent Imovement on the former top

cent and 325 per cent respec-tively more powerful than Level Laccording to Honeywell. Adding a second processor to Level 4 improves throughout a

further 15 to 22 per cent, and adding a third gives a similar Improvement over a two-procassor system. No cycle times, banchinarks or memory access times ware revealed at the US launch. A 68/80 can be field upgraced to a 68/DPS.

Three-second X-ray scanner from EMI ner is being introduced in the US this week by the world leader in the field, EMI. The lt costs \$150,000 more than the earlier

At the same exhibition, EMI is introducing a radiotherapy system, the EMI-Six, also developed in the US. It Incorporates a Digital Equipment PDP-8 minicomputer which accepts treatment parameters and monitors the treatment programme against those parameters.

Bearing in mind criticisms of hospitals which buy expensive scanners before their

programming

When the Basic programs have

been generated, the user can

amend them, either by editing

the generated code or by insci-

ting branches to separate user-

written Basic mindules. To assist

the generated pragram is

assigned a particular range of

the generated programs, but the

generator itself, whileh is also

The user may tallor not only

vith such thiloring, each part of

for its minicomputer-based Micos system (CW, July 2t),

MiniComputer Systema has brought to the UK a program

generator which, it claims, will

handle as much as 80 per cent of

the programming of a typical

Known collectively as Appli-

cation Programming Tools, the

software comprises three mo-

dules hundling data entry and

untidation, file management and

The APT programs require

parameter entries describing, for

example, validation criteria, file

and report structures and the

to be altered. The software then

generates programs in MCS'

matching of records from diff-erent files and changing of

specified fields within records.

Both sequential and indexed

The report generation mo-

dule, Request, has its own

database-like view of the collec-

tion of files, allowing data for n

report to be collated from

file management includes

Extensive Basic language.

business installation.

reput generation.

files are handled.

now promoting the idea of a shared scan-ning service, with self-contained scanning systems mounted on lorries and moving between hospitals EMI has received a £2.5 millinn order from Japan, its second biggest scnnner market.

The order, for 5005 and t010 scanners, ts from the company's Japanese distributor, Jnpan and over 500 from the US.

850 orders worth £180 million.

the specification for the system

For example, sold an MCS

age provides for 16 validation

criteria for dath entry and given

the specification, the user can

APT is alrendy being used by

CAP in its work with the Micos system for the House of Fraser.

and by MCS Itself, notably in the

set-up of its £1 milling network

of Micos mnchines for Shell.

easily change the package.

to ease such amendments.

vovember 24). "By the book, Laur Punter has ceased to be a member of the Micos APT to ease CSA," snld a CSA spokesinan handling the case, "but we felt we ought to exhaust the lines of

investigation which we had al-ready started." Apnrt from the merits of the

continuing, despite the former

company's liquidation (CW,

PROCEEDINGS initiated by Laur Punter against fellow con-Computing Services Asso-

should, in future, take a different ciation's code of conduct are line with complaints of this na ture" he told Computer Weekly Laur Punter's complaint al

leges unprofessional conduct by Wellorax over the falled merger companies (CW, April 21).

The liquidation hos not created any appreclable difficulty in proceeding with the complaint, said the spokesman "We are talking to individuals. particular case, the continuation rather than companies."

NRDC's software policy

tems and softwore product development as an important field of technological inno-

Speaking at a Computing size of the company. Services Association lunch last week, NRDC managing director William Makinson sold, "We nre ready and willing to enusider propositions from software companies." He emphasised that unilatemily but would demand u - not expect on easy ride.

THE National Research serious financial commitment Development Corp regards sys- from Its partner in any joint venture. However, the corpn ration's financial participation could exceed 50%. This would lenend but the product and the

NRDC almed to make a profit from all joint developments and could operate only if both sides were determined to make the NRDC would not take risks strated and companies should

It's just possible they haven't told you yet where to go for the best **DP** contracts

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ainca 1970 in the UK and abroad

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ONCE upon a time there was a university computing centre that ran a large number of Fortran jobs, mainly for the postgraduate students. The Fortran nupler was a nice friendly one that accepted the principle that the customer is alwnys right.

For Instance, if the user specified a numeric output field as 5 digits long, then 5 digits it whuld be - even if the data required 6 or 7 digits. In such a case, most significant digits were removed without any warning that this had been done, and the 5 least significant ones were printed. For inathince 916284 would be printed as

There come a terrible day gold.

There come a terrible day Submitted by G. W. Harr of when over a third of the usars. Orbingion Kenn, who wins the terrible computer many prisms.

knuw why the output from pro grams that had been running perfectly satisfactorily for several months, or even years, was now besnattered with as-The unswer was revealing

The compiler had been changed and the new one printed asterisks in pince of over-long numbers. Many users were suddenly faced with horrifying proof that the programs analysing their research results, for which they hoped to obtain PhDs, were incorrect.

The moral! Be sure your logic: is faultless; all that glisters is not

nager's office demanding to

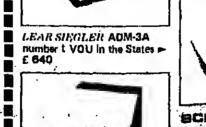
too distant future by the rest of If this is the case - and the CUYB survey covered 1,200 inemployees — the DPM should be devoting some evaluation time to his own future, or perhaps

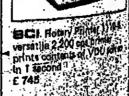
Meanwhile, reports from the US suggest a very different

digital LA-36 DECwritter II the 30 eps brand leader - £ 1090









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30 heatstreet tonion weet 95 210

Sharp fall in public

formant has, however, given

us a brief deacription of a

kipotl, from which it sounds

not greatly different from an

sbacua of the Chineae

"Its biggest advantage", says Mr Esparza, "la that the

person operating it has to

reason." I know some pro-

grammers who would regard

that as something of a diaad-

I began to be auspicious of

Castaneda's indian "gulde"

when he started sewing up lizards' eyelids to help Cost-

aneda on his mystical drug

experiences. I can't help

feeling that the most ancient

tradition of the South Ameri-

can Indians is called "pulling

Nevertheless, the Mexican

Foreign Trade Institute has

taken the "computers" at

face value, and plans to ex-

"LET'S GET OUR AITS

More gnould was Keith

who declared, "I'M HEXY. FIVE

Wrong, but prize-winning

answers to the picture quiz were aubmitted by S. F. Des-

mond, a avatems analyst from

Reading: (a) Uncompleted

nrchitect's model, Leaning

Tower of Pisa (actually reels

of mag tape); (b) University College Hospital, ophthalmic

dissecting jig (oparator's eye view of a diac pack); (c) Set of wooden exchequer tallies, c.

1830, HM Treasury (well, no:

lt was a microfiche), and (d)

Debris after Grandmasters'

draughts marathon (in fact it

waa chad from poper tape, cunningly diaguised by print-

ing the photo as a negative).

Diment, a systema consultant from Wantage, Oxfordshire,

port them. Watch out, iBM!

the leg of the foreigner".

Computers of the Gods?

von Däniken on one hand tzintzin" looked like. Our inand our own "Liveware Saga" on the other may have led our readera to wonder whether ancient civilisations knew more about computing than we do. A Mexican civil engineer claims to have uncovered evidence that the Aztecs did have auch knowl-

David Esparza Hidalgo says that his search entailed a iong period of associating with the local Indiana. "gaining their confidence" (shades of Carlos Castanede). Eventuolly an old ludlan told him of a computing instrument called a "kipotl", the design of which had been paased down from the Aztecs.

Tire kipoti ia evidently a smaller, simpler version of full-size computer cailed a "nepohualtzintzin". Don't iaugh, it'a shorter than "three-seventy-one-flve-

Pithy quiz-kids

OUR Champagne Comgrammer from Lelcester:
"LET'S GET OUR AITS the winner was announced last week (CW, November 24), attracted e wide range of entries and some ingenious.

badge slogans. Indeed, severol com-, patitors produced efforts which we feit deserved apecial runners-up awarda --the first five win £2 for their siogans, and the sixth £3 for his original anawers to the Alan Ferguson, a technical

consultant of Chingford, London, suggested, "HAL WAS ONE AREAO OF IRM", which ahouid please Arthur Clarke, and S. K. Coilina, of Hayes, Middlesex, was pointedly brief: "tayre". Frank Smith, a scientific

officer of London, appealed "STOP IT - YOU'RE TICKLING MY OCOTSTRAPS". possibly, though I hope not, in reaponse to the come on from John Long, e senior pro-

FIRST the bad news. Consid-

erable dismay hes been ex-

pressed in the US over the

operation of a new threat to

civiliaation as we know it, the

robot telephone edvertiaer.

This mechine, once fed a list

of telephone numbera, pro-

ceeds to dial all by likelf,

doggedly plodding through

l think you all did very Dial-a-spiel telephone calls adding to the poliution of junk mail proved too much for one recipient, a physiciat called Waiter 8ag who petitioned the Federal Communications Commission for relief. Then the White House Office of leas, urged tha FCC to conduct a full inquiry into all

phone advertising, and billa

to restrict the new devices

were introduced in the Houaa

The good news? The last

i haard, Digitai Products Corp had sold only 45 diallers,

and a rival company (also set

up a few montha ago) had

managed to sell but one.

and the Senate.

an entire exchange. When someone onswers ita call, it delivers e teped advertising spiel, records any responae, ond hanga up. In what is deacribed on a good day, it can notch up 1,000 calls.

After a Floride firm, Digital Products Corp, atarted selling the automatic dialler in Juna, the prospect of junk

Well, I'm buffered...

IT'S an ill wind, they say, that blows nobody ony good. Opportuniat of the year award goes to one of the Xerox whizz-kida under Shai Kice who helped devalop the highly regarded Xerox CP-V operating system. When Xerox pulled out of the business in 1975; he did a PhD at the

Univaraity of Celifornia at Los Angelas. His subject: how the Xerox

closure affected the community of El Segundo. He now works for Systems Engineering Laboratories, the Fort Loudardaie, Fioridabased high tachnology minimaker.

Public faith in computarised databanka is unlikaly to be anherced by banka is unlikaly to be anherced by which this axtract is taken. Other conclude Affin

the abusa of legitimate security needs which this axtrect ie taken. Other control of the volume which is to be Evens. Prof Jann Review to the volume which is to be to withhold information of general tributore to the volume, which is to be tributore to the volume, which is to be is added this month by input Two-

Scotland Yard has receib

awarded a contract for them;

or denial about the extent

Special Branch records at

sections of the police fore, r.

refused on grounds of

curlty."
Public faith in computer

datobanks is unlikely to be a

hanced by the sbuse :

legitimate security needs

withhold information of gene

information-gathering by the

police and security series,

one of the most sensitive price

issues at stake; and as the

country has shown too, note.

the police and security sera-

should be immune from ka

lative controls designed tog

tect individual privacy.

As the US has short

public concarn, writes PATRICIA published this month by Input Two- iseding figures in the industry, and its edited by Aian Simpson HEWITT of the Netional Council for Nine, of Puriey, Surrey, as part of the edited by Alan Simpson. Danger of the secret invasion of privacy

power comes out of a computer or databank, particularly if the information in it relates to people who do not know that it has been collected or cannot challenge its accuracy or use." The flourishing personal in-

formation industry is an essential part of complex social atructures. A credit-based economy needa credit reference agencies. The personal social services syatem - under increasing pressure to prevent family tragedles - accumulates more and more Information about ita "clienta"

Informal notes collected by teachera have been replaced by standard assessment cards. The financial aupport system - social security, supplementary benefits, family income supp benefits, family income aupp-lement, child benefits and a host of local means-teated benefits cannot function without millions of filea, often duplicating each other.

But the process of collecting Information in order to allocate services is not a neutral one. The agencles which use personnl Information exerciae control over people's lives - from, at one end of the scale, a decision to refuse hire purchase to, at the other end, a decision to toke a child into care, withdraw benefit or refuse someone a job. And the Information used as the baals for the decision - which may be Inaccurate or irrelevant or involve questionable judgments
— will be kept confidential from
the one person who is most

affected by it. in a society where privacy is increasingly rare, and people often feel at the mercy of agencles which they cannot challenge, information privacy - the control of personal information about onesalf — is crucial. Since 1968, when NCCL published Privacy Under Attock as part of our contribution to Human Rights Year, we have been concerned about four key aspecta of the information business:

 tha way in which personal information is collected; • the use of Inaccurate, out of date or irrelevant information or opinions as the basis for de-

 inadequate security to ensure that confidential information is kept confidential; and the transfer of information given for ona purpose without the individual'a consent.²

English law, both civil and criminal, is grossiy inadequate to cope with these concerns. To ka one axampie, Tracing Servicas Ltd, the credit reference agancy whose employees im-personated police officars, tax inspectors and DHSS officiale in order to obtain personal information, was convicted in 1969 of conapiracy to effect a public mischief. The offence no longer exists (thanks to the House of Lords' decision in a case iovolving bugging devices), but nothing has been put in its place. in the absance of a general right of privacy, most people have no redrasa against invasions of

Not only is existing law inadequate, but the government'a own atrategy of legislating for computerised databanks, via a Data Protection Authority, is tangential to the real problems.
As NCCL has consistantly stressed, it is not computerisation which invades privacy: the four factors noted shove

apply equally to manilla files, index cards or microfiche systems, as well as to computerised dota. They have, computerised dota. They have, computerised dota. They have, computerised dota.

Certainly, computerisation changes the scale of the pro-blem, by making it possible to collect, atore and combine inforthat are impossible with a filing particularly when it comes to

For Instance, a debt-collecting subsidiary of Diners Club inc in the US has been prosecuted for and tries to devise exhaustive procedures for aharing its data with all the other caring and mother US case, the Factual Service Bureau allegedly obtained personal Information illegally from the FBI'a National Crime Information Centre, the Social Security Administration

> matlon in, for Instance, a school record or credit reference file is inaccurate, based on hearsay or gossip, or irrelevant to the puroses of the databank user, then it will not be improved by computerisation. But neither will it be made more harmful — unless. of course, the fallure of the security procedures makea It available to thousonda of new There is also a new donger in

relying on the coding of subjective judgments which may be involved in mechaniaation or computeriaation: a note scribbled by a Department of Employment official on an unemployed worker's file is a different matter from an "A to D" coding as to employability, which was proposed by the Manpower Services Commission for a computerised experiment on London unemployed workers.

Because the government has decided to legislate only for computers, the Data Protection Committee has been looking for

appurently only found one, in a 12,000); and what chiefe ? government dotobank, and that used to decide on someone's with some difficulty. clusion in political records

This is hardly surprising. NCCL receives many hundreds mation in quantities and ways of complaints about information puterisation of all its records privacy every yenr. But people cabinet or card index box. Coinputerisation may also involve

only comploin when they can
find out (often by accident)

Special Branch. But all further what is being done with inforinformation - the tu matiun hald on them. And the numbers involved; confirms databanks which seem to couse most concern are those which are not computerised, and where people are most likely to make what other agencies will be access to the information the link between the Information and an adverse decision - credit reference files; school records; personnel files (where a blsck mark against an employee

> lementary benefits and aocial security records held locally. The most disturbing example of the link between invosions of individual privacy ond government secrecy is to be found in police and national security nformation-gathering. Scotland Yard's Criminal intelligence section (which deals with associates and suspects, as well as those with criminal records); Special Branch, responsible fur political investigations; and the Security Services carry out surveillance operations and maintain records on millions of

may only come to light in the

form of a reference); supp-

But the public are not told how many people are involved; what kind of information is col-

ACOUSTIC

COUPLERS

John Shattuck, Privaryand Control, Privacy Report V .. No. 8. March 1976 (America Libertles Union). See Privacy: The Inforce Galberers (NCCL, 1977)1

REFERENCES



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Rising star of hobby market goes on sale in UK

ONE of the potential "stars" of the personal allow himself to concentrate on marketing £995 to £1,900. It requires the addition of and small businesa computer business, the machine. Apple 11, is now being sold in the UK by its

Sterland, heads the operation.

Although the first sales have slready been

Apple tl, is now being sold in the UK by Apple the UK by Apple

Sterland, heads the operation.

Apple, saya Sterland, is to be Personal

Based on the MOS Technology 6502 processor, Apple II is a fully assembled unit that Computers' sole product line for at least a year. He is avoiding rapid diversification to

csssatte tape recorder and television for operation, and it can be directly interfsced with a colour television. A full ASCII keyboard is built into the unit.

Colour graphics are included as a standard Item in Apple, and the software includes a 2K byte, ROM mounted monitor and a 6K byte ROM mounted Basic. As an option, there is also an expanded, floating point Basic known as Applesoft.

First user reponse to the VAX-11/780

Equipment users to the new 32-bit VAX-11/780 suggest that it will be a bold systems builder who decides to ploneer usage of the powerful minl.

In native mode it looks like a real number-crunching winner," Doug Schilling of Arbat commented. "But how do you get your code into It? It seems that only people running under RSX-11 on their PDP-11 machines and writing in Fortran can migrate their software eas-

"At first sight it appears that Macro-II code written to run under RSX is all right until you read the small print. Then you find that privileged instructions are not allowed, which means that rewriting will be required."
The VAX-I1/780 nilows PDP-

tl software to be run in rmulation mode, but Its equivalent power is then only that of the less expensive PDP-11/70, so inmost cases little will be gained

"I think DEC introduced it mainly because it has been missing out in the oircraft simulator market recently for want of a 12-bit machine, losing potential business to people like SEL." said Schilling.
Arbai builds systems for the

banking and financial market based on PDP-11 hardware and its own proprietary AIMS operating system and prngram-

"We are assessing the cost of rewriting AIMS to run on the VAX," said Schilling, "It would take us about six months, but we would end up with a machine which runs 25 times as fast as operating system in which we the PDP-11/70 at about 1.5 times

Dr George Coggan, managing director of Gamma Associates, was enthusiastic about the pro-

"It's an exciting product, and we see it extending the range medium scale DECsystem-20 CSC upgrades 17 mainframes

sharing service and are Insuled in three data centres in the Its, and in Canada, Aust-

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to 1100/80s from 1979

THE key role that the 1100/80 ralia, South Africa and Spain. In

performs in Univac's marketing the latter three countries, in-

strategy is underlined by the fact fonet operates through affiliated

that Computer Sciences Corp has decided to upgrade all 17 of the 1108a run under CSC's

ils 1108 mainframes to 1100/80s, own CSTS operating systam, but

The 1108s are used on CSC's the 1108 and the 1100/80 means

international Infonet time that CSTS should run on the

"The first organisation to product as the 20 at present. In

order a VAX will be a pioneer, and Gamma would have to evaluate it very carafully before wo years' time it might be, but making a decision to buy. But today, if a customer's re-DEC is now the second largest computer manufacturer in the world, and we are happy to see them developing new products at both ends of the line," he said. Gamma has a PDP-11/70 and two 11/45s, and offers bureau services as well as installing

commercial turnkey systems on

PDP-11s, mainly running under

The lack of an emulation fa-

cillty for programs written to run under RSTS, apart from

those written in Basic Plus 2, has

led some people to assume that

RSX is the shape of things to

come in DEC operating systems

and that RSTS will not be cn-

hanced although continuing to

Geoff Finch, DEC's Northern

Europenn OEM marketing ma-

nager told Computer Weekly

that nothing of the kind had

"It is wrong to conclude that

we will not continue to enhance

RSTS. The two operating sys-

tems are designed to solve diff-

erent problems. RSTS is a time

sharing operating system, whereas RSX is a real time

"In theory, it is possible to write an application migration

executive which allowed RSTS

to run under VMS: we simply

have not done so," he explained

as RSTS; it represents a single

have attempted to optimise the features of both RSTS and

The price-performance chn-

racteristics of the VAX-11/780

have also led people to conclude

the broad compatibility between

new machines with very little

The first 1100/80 ia to be

delivered to CSC naxt March and will be used for research and

development. Two possible up-grades for the 1108, the 1100 and the 1100/40 were introduced by

Univac before tha 1100/80 was

TWO compenies in Basidon, Esaex, have jointly ordered a Prima 400 minicomputer to handle their own processing and

to provide bureau servicea. They

are Systematica International

which provides market research

information to manufacturers of

construction eod agricultural equipment, and Distributed

Dnta Processing, which serves scientific and engineering users

announced late last year.

Prime order

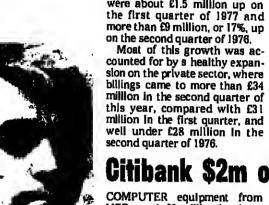
software conversion.

"VMS will do the same thing

ever been snid.

operating system.

quirements are likely to grow he will be steered to the DECsystem-20. The VAX is not sultable for the end-user in a commercial environment; for example, there is as yet no native mode Cobol on it, so we need the 20 for that market."



service business A SIZEABLE drop in the value of billings to public service clients in the second quarter of £7.5 million between the first this year is shown in the last and second quarters of thia year, Buainess Monitor on the UK nithough the Statistics Office

computer services industry, points out that the first quarter from the government's Business level was unusually high. However, the second quarter Total billings by UK computer figure was no higher than that service companies in the second quarter, at nearly £64 million, were about £1.5 million up on for the seond quarter of 1976 Indicating an actual reduction in public sector business over the the first quarter of 1977 and more than £9 million, or 17%, up 12 month period if inflation is taken Into account.

In contrast, business with overseas clients increased by well over 30% during the same period, the total value of billings nsing from £2.4 million to more than £3.1 million. But this rapid growth was checked between the first and second quarters of this year during which overseas

Citibank \$2m order to NCR

COMPUTER equipment from NCR worth \$2 million has been York, to help in reducing office processing costa and to improve customer service.

Moat of this growth was ac-

The equipment consists of twin NCR Criterion 8550 sys- the 8550s housed in Rochester.

Installed by Cltibank in New 7750 distributive document pru

cessing systems and VDUs.
The distributive systems, lo cated in Albany, Buffalo, and Rochester, are linked online to



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GILB'S MYTHODOLOGY

Numeric input codes: are they cheaper than alpha?

n the data processing buaineas that numeric codes for almost everything are aomehow to be

The mythodology of the numeric code has been with us to long, and is so deeply ingrained, that I have seen large car-factory DP installationa with hundreda of input document types, and not a single alphabetic code was in use.

I have had serious debates with clienta who wanted to put In pure numaric online ter-minals instead of allowing for the possibility of alphanumerics. One of these capitulated when I could demonstrate that the time-pressured online regiatration was fastar and safer uaing a few alphabetic concepts.

The starting point of this myth is the observation that numeric keying in data regisration "Is faster". And the beief that the introduction of alphabetic codes in the keypunch room would require 180 instead of the present staff of 60 pretty young things.

I have a table of objectively measured keying rates for dif-ferent types of material on

OS/VS.

different types of machines (reproduced in Software Me-

The table provides some food for thought because it clearly shows that almost all forma of alphabetic keying have a raw keying rate two to four times aa fast as any of the pure numeric keying rates. The answer to why this is so

s not very far off. The highast keying ratas (about 750 keystrokea par minute) are achieved by competition typists, typing a page of text on an The typists are wall trained

and practised in their art. Your keypunch girls are probably not very good at touch typing alphabetic data and they use ten fingers as opposed to keypunchers' five. The worda are meaningful to them - as are the sentences - so they can make use of their human buffer memory to speed up the output. It doesn't seem at ail unreasonable that our keypunch girl ia only working at 200 to 400 characters a

There are no clear grounds for assuming that codes which are designed as numeric codes

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codes for naturally occurring data is excellently sulted for a computer program, and programmera who force people to do such demeaning work are committing heresy. The programmer who insists on a numeric code series because it seems to simplify his program subscript usage, has got his priorities all wrong and needs ortunately they really ax-

iat, today. Even if we, for the sake of argument, assume that numerics and elphabetics are roughly the same in keying rate, we ahould recognise the propertiea of alphabetics for allowing the use of more natural codes, for allowing automatic detection

prefer numeric codes when we consider the extra work of finding the correct code, and filling in a form (MAR becomes 02, SMITHS becomes 023450-

The work of finding unique elp or another occupation.

of random errors, for allowing automatic correction of chance errors, and for allowing

There is even less reason to

code series. For example, If we assum that numerics allow 10 com binations of characters and that alphanumerics allow 4 then we can immediately se the potential advantage which alphanumeric codes give of ol lowing us to write and ke fewer characters for a dat

element. A four character cod has about 2,560,000 combir ations (which would require seven digit number). Let us look at the erro detecting properties of a fou digit code (0000-9999) If a 10,000 combinations ar utilised. Any random error is valid code and the probabilit of detecting an error based on discovering an invelid or un used code is obviously 0%.

If the code had been designed as alphanumeric (000 to ZZZ, plus nationa special characters or signs there would be 249 invalid combinations for each valid combination. A chance cor ruption of writing or key de pression would have a 249/25 or 99.6% chance of resulting in an invalid code. Thua it woul be detected without doing on harm, even with the mos imitive control of table or fil

for growth and change in the

If we should increase th of objects which the code relatea to by say 200% now, for example) then with he pure numeric code we vould require an extra digit 25% extra keying effort) whareas if we were satisfied with a small reduction in error detaction ability for chance errors (from 98.6% down to 247/250 or 98.8%) wa could keep the same number of cha-

acters in the code. Numbera have their place hcrevar numbera are naturo to use, such as in amounts quantities and day of the month. But other types of codes have significant advan-

tages, too.
My hypothesis: "Systamntic utilisation of alphanumeric odes resulta in data collection productivity Improvements o it least a factor of two to four.

*Student Literature, Oalo. Input Two-Nine Ltd. 7 Banstead Road, Purley, Surrey CR2 3ER. £8.50.

SOFTWARE

US report calls for more investment in development tool report, the compiler could be future, be "left largely with task of code generation". The NBS report also include the compiler of the compiler could be compiler of the compiler could be compiler of the compiler of the compiler could be compiler of the c

voluminous references to be

vious articles on the subject

stotistics on the existing to

program development aik

foct that most tools were

from user groups, or derect in-house. This "suggests and market for tools from the

dependent software o

Software Tools: a Building Ed Approach; National Bureaud Sc dards, \$2.10 + 25% for mair

outside US: avallable fro

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Interfacing

A MEETING of the RTLAG

G and 7, at the Excelsion He-

Heathrow. Topics of discuss:

iluations of the langua-

are planned to include a

applications experient

developments in softwares:

port ond proposals for come

ogramining standards.

Apart from routine main

ince, an important topic w

the support heading will be

terface with operating syst

and other mochine-specifics:

ware. RTL/2 was conceived to

hnd to be reached at the re

level, to enable users to the

ndvantage of some of the gard

tional operating systemian

Puzzler

RTL/2 is

quired with the hardway

This uncovers the support

A REPORT produced by the US National Gureau of Stundards* takes the view that investment in program development tools by the everage computer installation is inodequote, and should take a higher priority in budgets and work schedules

The document surveys the available software tools in various categories, uncovering a surprisingly narrow specialisation in the functions of such

It goes on to recommend n strategy for the in-house development of programming aids, the chief feature being dasign of multi-function oids from standard "bullding blocka", stored on a library.

Knowledge of the techniques of analysing program text and its syntax and collating symbol tables for identifier names in a particular language will, the re-port claims, equip o user with the ability to build his own prograin development tools.

As an experiment, a package was constructed to combine editing and syntax checking, so that a user could check immediately that n proposed omendment to a program was syntactically "cleon". The syntax checking portlin was not developed by the NBS, but obtained from the UK's Nutional Physical Laborntory

The linking of the "building blocks" for this product brought out a number of problems, the principal one being the conversion of a stand-ulone program to linked suhroutine. Consequently, the report re-

commends developing the building blocks" us subroutines from the beginning, even at the cost of programming a dummy "teat harness" tn run Ihem.

mproved linkagea between inndules originally written in different inngunges and a facility for decloring data to be shared between "Incul" and "global

The experiment also led to some interesting ideas for future editor which will correct trivial syntax errors, and one which points out errors ns they are entered. At least one product of the letter type has already been

A THREE figure oumber AF has only one divisor DE (6.5 thon Itself and unity). Olvethe one of the five digits invite!

4, can you identify them 6.5 thousand the property of the five digits invite! Extrapolating such multi-function nida furthar, says the lution?

Infonet gets More micros in enhancement IBM ops systems?

HE infonst time sharing nat-work operated by Computer work operated by computer Solences Corp has been en-henced with the addition of a new database management aye-tam, Manage, which uses a Codesyl-type data definition

iguaga. Auliding on thia foundation the system provides three data access and manipulation facil-ities: a programmer interface (from Cobol, Fortran, and (ssambler); e cuatom-bullt la arpretativa languaga; and a reort ganarator. Managa ia fully compatible

with the previous date ma-negoment system, Aladin, It can be used as a structural managar for users' existing Aladin files. Thus, by using the report ganarator lacility, non-technical users can rapidly and easily ax-tract and assemble information from computer files praviously unaveilable to them. Manage is now the most powerful data management system evaluable on the infonet natwork.

Graphics main theme interface user meeting

FOLLOWING its release of the Turned Parts Cost Estimation package tCW, November 10), the CAD Centre, Cambridge. has, as promised, produced a similar graphics interface for generating numerical control tapes for machine tools.

The package displays a picture of the original component and, as machining operations, are defined to the NC routine, these are reflected in changes to the picture. The package has been developed at the Centre's production services department. the disc access methods would

would be more difficult to implement than with pure soft-

was the 3031 processor. In his presentation, he gave particular emphasis to MVS. Taking into account the tar-

can be expected in installations moving directly from DOS/VS to MVS, the meeting felt.

sub-group meeting earlier this month in Mninz, West Germany. There, IBM gave strong hints that DOS/VS would be supported into the foreseeable future, and some observers saw

Wright's chief topic, however,

get market of the 3030 range, and adding price-performance the 370 rnnge, a large incrense

A report was given of Guide

then split into DOS/VS users at the small end of the range, and MVS on the 158 and upwards. with an increasing proportion of VM/370 users, mostly those with a time sharing re-

The UK Guide meeting was niso saddressed by Anthony Hemens, from British Home Stores. who spoke on the growing number of disc-space ma-magement aids available for IBM users and gave his experience of

John Grny, nf Lombard North

Central, gave an account of henchmarks on IBM's new DOS/VS link editor, which substantiated the campany's claim for n large Improvement In

Zeus-Hermes' move into applications pack soon

from software house Zeus-Hermes could ahortly make their appearance as a result of work done for specific clients. The market for two pieces of soft-Using an iCL 2903-based TP syatem, a clerk can "pull' ware as generally available pro-ducts is at present being selected invoices from an account, while the outstanding cash assessed, said director Mick is diaplayed. The clerk can pull

Both systema are based on Zeus-Hermes' ICL teleprocessing monitor Cortez, and were developed for Rocal and the Yeast and Food division of the Distillers Company

The Diatiliera Company aoft-

plemented on two ICL 2904s, with an attached network of

ance reaches zero.

Look monitor enhanced

with better aids to tuning the software, Applied Data Research, of New Jersey, lins dded facilitles to its Lonk per-The main additions are two

commands pruviding infor-

AIMING to provide the user of mation on the functioning of IBM's MVS operating system MVS' System Resnurce Monager and Auxillary Sturoge Monitor. Commands have also been added to control the functioning of the SRM.

lifferent involces until this ba-

The aoftware devaloped for

Racai handles atock and pro-

duction control, and will be Im-

Look also applies to other OS and OS/VS environments and is marketed in the UK hy CAP.

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SKORSWALE NOTES

Have the new methods squeezed out creativity?

ANOTHER US commentator has entered the opposition lobby on "modern" programming standards. Sociologist Philip Kraft claims that atructured and modular programming and the "chief programmer team" con-cept has been used by man-agement to "da-akill and control their programmers,"

Kraft agrees that the techniques have achieved their aim in making the programming task essier and more atandardisad, and dividing up largar tasks, but questiona whether auch simplification is necessarily

Barely a ganaration after its inception, programming is no longer tha complax work of creative and avan eccentric people. Instead, dividad and routinised, it has become mass production work parcallad out to interchangaable datail

This change, he saya, has been dictated by managament, whose aim is not to make the job more interesting, but to reduce costs and increase profits.

Long-tarm programmera among our readera must have hadexperience of the ploneering days of programming which kraft admiras. Have things changed all that much? Are programmers still creative, or are grammers still creative, or are they interchangeable units? Ara the new "units" the same people with the creativity aqueezad out of them, or a different set of programmers with an extended them. programmers with antirely diff-

erent personalities? Even if we grant Kraft's thesis, it could be argued that management is right; it is a pro-grammar's job to be productive and make money for the com-pany, rather than to enjoy the

IBM operating aystems and their

usnge patterns have emergad

from a meeting last week of a sub-group of the IBM user

group, Guide. Most significantly, more ammunition

was given to the expectation of

increased microprogramming

on the periphery of the

The meeting, of the DOS pro-

ject group of Guide In the UK,

took place in Worthing, Sussex

nnd attracted about 50 DOS and

In reaponse to delegates'

questions, John Wright, from IBM's Large Systems Group at Chiswick, indicated that file

access methods could, in future,

e microprogrammed within sc-

pnrute 1/O processors or Inteli-

gent disc controllers, both

peeding execution and taking

he load off the main processor.

There has been a growing

feeling among users that such

microprogramming is on the

way. Already there are micro-programmed "assists" for the latest 370s making the hardware

more amendable to the required

operating system. Sorting and other utility soft-

ware, users feel, is also an area

which IBM could be viewing as

ripe for microprogramming. Suppliers of independent utility software have already expressed

fears of such a trend, pointing out that ready-made micropro-

grams would severely handicap

There are snags to the mi

croprogramming of systems

software, Wright admitted. One

of the primnry difficulties with

operating systema.

DOS/VS users,

Guide. Moat

While on the aubject of structured programming, we should quote a London raeder, who queries whather the GOTO is completely redundant, as sugg-asted by Ivor Denicle (CW, November 10) and many others. Frank House, of Guy's Hos-

ragment of coding whose function is simply to read en input and diract a usar to an appropriata part of the program. He suggests: Try again: writetext ('1 to in

put naw data, 2 to input new starting point, 3 to resume, 0 to

If d = 1 then goto fresh data; if d = 2 than goto start point; if d = 3 then goto carry on; if d ≠ 0 then bagin newline; (1); writext ('clot') goto

"This seems to me a naturel and self-documenting way of writing the program." says House, "and yes, I have heard of switch, but I find that less self-explanatory, when I return to a liating after a year or so, and else if uses moreink, is there a better wey of writing this which avoids goto?"

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the third consecutive year.

is used, however efficient the program.

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Gilb answers the critics

eply to the many readars who hava commented on some of the Mythodology columns and the associated lettera, ao 1 will not attempt too detailed a comment.

Roger Tagg (Lettera, Octobar Roger Tagg (Lettera, Octobar 13) was not ao convinced by my attampts (Septembar 8) to ahoot down DBMS, and Jeremy Salter of Norsk Deta had similar problems on behalf of his Codasyl beaed (Fortran based too) minicomputer DBMS (CW, Octobar 20).

1 hopa that my further efforts to giva far more specific and quentitativa evidence and

raferencaa (October S) ware mora convincing. Certeinly Mr Tagg did not have the benafit of reading it before ha wrote. Both parties were admittedly sales agents for thair own products IDMS (Tagg) and SIBAS (Salter). I don't doubt their cases as stated and certainly I have no as stated and certainly I have no tion. California is my home particular products.

[Old Only a stated and certainly I have no tion. California is my home particular products.

[Old Only a stated and certainly I have no tion. California is my home particular products.

[Old Only a stated and certainly I have no tion. California is my home place of residence I was busy ell only a stated and certainly I have no tion. California is my home place of residence I was busy ell only a stated and certainly I have no tion. California is my home particular to the california is my home place of residence I was busy ell only a stated and certainly I have no tion. California is my home particular to the california is my home parti

I am sure they work, and that they work bettar than most of the other packages on the market; certainly better than the top-heevy products I was specifically referring to in my column.

Neither of the correspondents offared, or even indicated the existence of, evidence of the relative profitability of using their

lative profitability of using their packages compered to simple file organization tachniques. Tha more facts the better. My mein thrust is simply to

make it epparent that we all need to ask harder queations and get harder guarenteea when considering the use of a DBMS. I rest my case on the evidance presented in my columns — but for those who want to dabata more, I will be presenting e

special one-day sassion for In-fotech in February in London.





Stuart Moore

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PEOPLE

Charity with a punch

io software support manager.

William Gott has become director of product marketing for Qume in Hayword, California. He was most recently marketing manager for terminals and peripherals with Texos

Owl raffle

CUDDLY owls reffted by Nastua en its etsnd at Compec ware wen by: Colin Wabb, Air Products of Naw Malden, Surrey; S. V. Shspherd, AWRE, Al-dermaston;

Devid Summere, NetWast.

John Shapeoti of Exiel has been promoted from senior asles executive to sales and marketing manager. Rey Hoare joins os a sales executive, and Nick Campbell and lulian Costley as salea reps.

Pater Blackman, formerly an analyst with Pregramming ond Softwore Implementation, has oined Harrison as a syalems analysi. Fred Klichaner Joins as a programmer, from Framlington Computer Services, a subsidinry of London Merchant Securities.

DECEMBER 8
Big brother is watching you, OK? P.A.
Santet. BCS, East Anglis branch. Norwich
Union olitices, Norwieli, 19.00.

Computer networks seminar. National Computer networks Net Computer Networks NCC, Oxford Road, Manchester. Reservations 25.49 from NCC jabove address). Tel: 081.292 8923

061-228 6333.
Program design, Michael Jackson, &CS.
Glasgow branch. Daniel Brown'n Restnurant, Glasgow. 18.00.
Social aspects of machine intelligence.
Edinburgh University Machine Intelligence Research Unit. Hume Towar,
Occurse Square, Edinburgh. 17.15. George Square, Edinburgh, 17.15. DECEMBER 5-2

Third symponium on computing methods in applied scisnces and engineering, institut ds Recharcha d'Informatique et d'Automatique. Varnsilles, France. Details: IRIA, Sorvice des Relations Extérieuren. Domotine de Voluceau, Rocquencourt, 78150 Lo Cheaney, France. Tel. 854 90 20.

Operations, profession or trade? Dick Walter, Ted Cluff, BCS D perations Group, BOC Oatasolve, Hammersmith House, Blacks Rond, London WR. 18.00. Computerised snimetion. R. Hopgood, BCS, NW London branch. Reliway Hotel, Orsenford Middle 48 00.

Oreenford, Middx. (8,00. APL Grnup meeting. BCS, Hampshire branch. Portamouth Management Centre. ortsmouth. 19 00.

Visit to British Steel — Computers In process control. aCS. Bristol branch. BSC. Spencer Workn, Llanwern. 17.38. Those wishing to attend should contact the bench appearance. expenditure . . . ? BCS, Kent branch. St George Hotel, Chathorn, 18.30. OECEMBER 12

Word processing. M. Robine. BCS, Wolverhompton brench. The Polytechnic, Wolverhompton. 18,00 Subject selected by apeoker. Michael Heseltine, MP. BCS, Merseyside branch. Adelphi Hotel, Liverpool, 17.00 A systems approach to pictoriel pattern recognition—lecture series. Morton Nadler. Mechine Intelligence Roseerch Unit. Cheso Lab, MIRU, University of Edinburgh. 18,30 nu-nit micropracessora — F100L, 0900 micros. BCS Microprocessaors Oroup. Polytechnic of Central London, London WI, 14.00. WI. 14.00.
Meking a databnse work. Malcolm Robinson. BCS, Croydon branch Fairfield Halls, Croydon. 19.15.
Control of distributed projects. Suzetto Harald. 8CS, Reading branch. The Griffin. Cavershum. 20.00.
Why did we choose DEC Kit? Brion Castle, 8CS First Time User Group. Royal Angus Hotsi. Birmbaghum 4. 14.00.
DECEMBER 13-10.
Lat international spiling information.

Edinburgh, ta.3a OECEMBER 6-7 General mseting RTL/2 User Group. Excelsior Hotel. London (Hsethrow). Detoils: SPL Internetisnal, 01-638 7833.

DECEMBER 7 Management Education Sentinars —
How to succeed with etandards. Pot
Crocker. Date Processing Munegement
Associetion. Montealm Hotel, London.

lat international sniino information meeting. Onlino Raviow, Tara Hstet, Loudon.

Association. Montcaim Hotel, London Wi. 14.00.
Exhibition and demonstration of university, achools, industrial and srmsd aervices projects. National Davelopment Programme in Computer-Assisted Learning. Addison Restaurant, Olympis, London. Details: 91-637 0552.
Developmentu in duta cepture. Mélcolm Brighton. BCS Study Group for Computers in Survey Analysis. Polylechnic of North London, London N7. 17.30.
Performutee menagement in HM Cus-

Performance menagement in HM Cus-toms end Exclse. Nevilla Greenhsigh, Victor Whittlegton BCS S. Essex branch, The Bull's Eye, Basildsn. 10.48,

A FUNO-RAISING effort by punch operators of the NCB has raised enough money to buy a guide dog for oblind person.

The 40 punch glrls at the Coal Board's Cannock Computer Centre have raised £500 in 12 months, by organising weekly collections and various events.

A disco brought in £100, and of

Elteen Aubrick of Houston In-strument in Auslin, Texas, has been promoted from programmer/anniyal Computing Systems. He joins the company from CDC Dato Services UK, where he was product sales manager for commercial bureau services. Arian Sutten, formerly aalea and lechnical support manager, hos been appointed marketing and tech-nicol manager.

Allon Currier has joined Harris aa Northern area sales executive, based In Manchesicr. Previously he held Inc same position with Modcomp.

David Robinson becomes static analyat with 3M's Manchester office; his last Job was as sales agent with Certified Laboratories Lid of War-

Paul Aryam-Tatham, who until recently has been technicol salea executive responsible for management sciences/lineor program-ming at Scicon, has been appointed

Michael Lorimer haa been apponlied financial controller and com-pany secretary of Inforex, where he will also be responsible for general addin. He was previously group eccountant for Manthel Holdings of Wellington, New Zealand.

Peter Crofis, lotely senior con-suliani in Rank Xerox' mnintenance softwore group, has gone to Computer Associates UK os senior tech-

Student evening. 8CS, Sussen branch. Brighton Polytechnic, Moulscomb, Brighton. 19.30. Medical care management. Prof J. An-derson, BCS, Belfast branch. Windsor Hotsl. 8 alfast. 18.30.

Meeting. IBM Computer Users' Anso-rtion Telecomon Geoup, Holidoy Inn,

CEREMBER 8
Computers and munic. J. Dunn. BCS,
Norih Staffs branch. Computer Centre, N
Stafin Polytechnic, Stafford. 20:00,
The Impact of electronics, conference.
Electronics Weekly magazina, Hilton
Hotal, London. 8:00.
COM, a user'n view. BCS, Birmingham
branch. Priory Dene Hotel, Edgbaatnn,
Birmingham. 18:30.

branch. Priory Dene Hotel, Edgbaston, Birmingham. 18.30.
Microprocessors and their applications, Or J. P. Race. BCS. S Yorkshire branch. Heriot House, City Polytechnic, Shaffisid, 18.30. BCS Members only.
Library Butlomsilon/buffet supper. Stuce Royan, BCS. Newcastle branch.

Bruce Royan. BCS, Newcastle branch. Borras Bridge Bidg. University of Naw-castle. 19.00.

Some aspects of medical computing in Europe, seminar. BCS Medical (London) Group. The London Hospital, London E1. 9.50. Tickets from Mrs P. Guntrip, 0277

Visit to Prime Computer, 8CS, Bedford brunch, Applications to branch secretory.

What should and what will happen to Cobol. J. B. Lucking. BCS Cobol Group. Polylechnic of Central London, London W1. 14.15.

Tomorrow's World, the mass morket for computers. John Surnett. Association of Independent Computer Specialists. AICS, 8 Leicester Street, London WC2, 18.30.

DECEMBER 7-8

OECEMBER 8

OECEMBER 8

DECEMBER 10

OECEMBER 13

OECEMBER 14



THE Midlands Regionet Officer of the Guida Dega fer the Stind Assectation, Charles Whittle, receives a chaque for £800 from Christine Lomas ng punch eperators at NCA Cannock.

Tony Lay, David Martin and Kim Jenkina have joined Package Programs Ltd as systems conauliants. Lay formerly worked for Factory Mutual International as a systema analyst, and at present is taking his linals to become a certified accountant; at PPL he will introduce the MMS package to the UK Martin was MMS package to the UK. Martin was formerly a programmer with Hoa-kyns Systema, and Jenkina was a programmer with Private Patients Plan Ltd; both were recruited as ICL

Peter Airs and Dines Appla have become APL consultants with 1, P. Sharp. Airs recently got hta MSc from Westfield University College London, and was formerly a programmer with Fraser Williams, while Applo was previously a lecturer in mathematics at the University of the West Indies in Trinidad.

OECEMBER 15

DECEMBER 15-18

OECEMAER IS

A systems ar

JANUARY 3

JANUARY 8

JANUARY 10

JANUARY 11

Computerised tomographical scenning, lecture. Institution of Electrical Engineers. IEE, Sevoy Place, London WC2, 5.00 for 5.30.

JANUARY & Integral of Circuita — reliability, colloquium. Institution of Electrical Engineera IEE, Sovoy Place, Loodon WC2, 13.30, Register with IEE.

Practice! Honeywell computing. Speckers from Honsywell Informetion Systom. Data Processing Management Association. Bull Hotel, Gerrardn Cross, 1845.

Why a bureau in the best no ution for o first time uncr. BCS First Time User Oroup. Royal Angus Hotsi, Birninghom 4.4.00.

International telex switching systems.
C. C. Harmen, E. E. Danials. Institution of Electricol Engineers. IEE, Savoy Pince, London WC2,500 for 5.30.
What this OPM thinks of the independent computer specialist, Oerry Fisher, Association of Independent Computer, Specialists, AICS, 8 Letceller Street, London WC2, 18.30.

A MICROPROCESSOR coursa is offered by Hatfisid Polytechole. It will take place over a period of oight consacutiva Wodnesdays from 2 until 2 pm, bot ween Januory 11 and March I. The Polytechnic's DEC system-10 will be used for practical work. The course fae is £110. Further details and applications forms from Mra P. Ingram, School of Information Sciences, Hatfield Polytechnic, PO Box 108, Hetfiald, AL10 &Ag.

MANAGEMENT courses and aeminars from the Srbish institute of Management include Selection Interviewing, January 18 and Creating an Atmosphere for Change, January 24-25, 80th of these take piece in London but courses are offered by the BIM in other parts of the country.

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For details contact Mrs V. anonc, Management House, Parher Street, London WC28 5PT, tel: 01-405 3456.

Calls for

PAPERS are solicited for the third conformer on Artificial Intelligence to be lieble in Humburg on July 18-20, 1978. It is co-sponsored by the Society for the Study of Artificial Intelligence and the Gesell-schaft FOr Informatik. Phree Review Lectures, on representation of knowledge, programming methodologies.

edge, programming methodology and vision systems, will be given, and the organisers will consider both papers whose xubjects overlap with these be-tures, and papers on other subjects. For further details contact the Programme Chalman, Derek Sleeman Dept of Com-puter Studies, The University, Leeds 1,52 9JT.

ABSTRACTS are invited for a workshop on computing skills and adaptive systems to be held on March 21-22 and sponsored

to be held on March 21-22 and sponsored by the University of Liverpool Cumputer Laboratory. The acquisition and excress of programming skills; psychological variables in the design of programming languages; interfueing interactive systems; the provision of Buildunee to non-professional computer users; experimental design and method in the investigation of computing behaviour, are some of the possible topics. Longth of abstracta should be 300 words and the deadline for submission is December 24. Papers should be sent to the Secretary, Computing Skills Workshop, Computer Laboratory, University of Liverpool, P.O. Box 147, Liverpool L69 38X.

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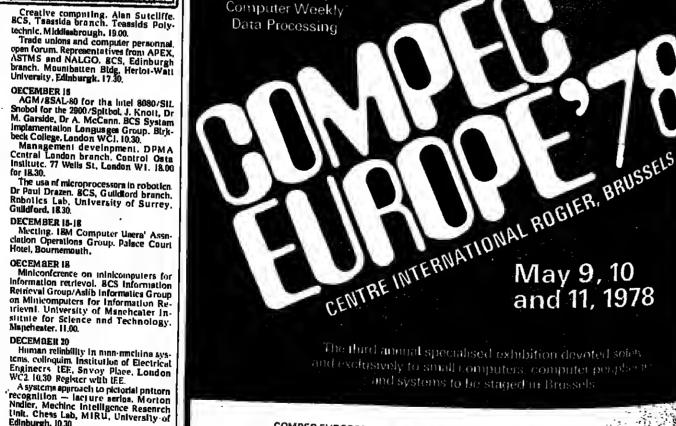
I WILL COME!

Alley,

papers

THE courses brochure from the Inbucou Menagament Devalopmant Servics tor January 1878 to mid-1878 is now a vnilable. The rango of about 70 courses includes titles such as Computer Appreciation for Business Executives, Company Doctoring for Improved Profitability, Marketing and Selling Inth Europe, and many more, grouped under the gonerni headings of executive development, general management and law, finance, marketing and selling, pernonnel, production, purchasing, development and data processing. Further details from the Course Registrar, PO Box 28, Cumberley GUIS5RH, tel: 0278 20214.





COMPEC EUROPE In 1977 draw 5,300 visitors from the cream of the computer world. Thay came from ea far away as the USA, Ruasia, Japan, Finland, Italy, Hungary and Poland - as well as from Tha great industrial areas of Garmany, Holland, Balglum, France and tha Unitad

COMPEC EUROPE is sponsored by the leading United Kingdom publications "Computer Waskly" and "Dala" Proceeding", and is organised for them of Illfla Promotiona. All are members of IPO Buainass Preas at Oorset House, Stamford Straat, London, SE1 9U. England. Talaphona: 01-261 8000 Talax: 25137 BISPRS G

Compac Europa, Room 821, Stamford Sfreat, London, SE1 9LU, England 1 wish to axhibit at COMPEC EUROPE

76 - plaesa aand ma detalls. I wan to vial COMPEC EUROPE'78 plaase aand ma(number) frea pre - registration tickets. *Complete and delets as applicable.

Oorsal House:

Cost of Post Office services criticised

lowards its customers and the costs of its comthe Post Office carried out by the Dotn Processing Management Association and Langton Information Systems.

The survey also shows that organisations do not expect their use of communications to change much despite the advent of electronic mail and international information networks. As expected (CW, November 10) the cost of Post

Offica services received most criticism. Half the organisations polled said costs were a firm deterrent to introducing communications systems, and 24% said systems were often rejected because of

Half of those questioned also thought that the Post Office was slow to respond to users' needs. One user said, "The problem is finding the right person with the required information within the Post Office organisation." Another sald the Post Office did not have the

practical experience of the day-to-day problems of controlling a commercial organisation. This comment was taken further by a question on the Post Office's level of consultation with

users. One user said, "All efforts should be made to sired the Post Office's attention to the real world of dala processing. Another suggested that the DPMA should be on

an executive committee set up to steer the Post

mittee's proposal that the Post Office's communication services, emerge from the survey of munications activities should be split from the postal business. They also called for greater freedom and competition, arguing that the monopoly was impeding development.

Users were conservative about their future use of communications. Electronic mall was regarded aa too far in the future even to start working out costs, and few users saw any great increase in facsimile or graphics transmission.

Similarly, 60% did not envisage any significant hange in their participation in public networks or n their use of external information systems,

Viewdata and word processing fared slightly better. Almost 20% said they would be doing much more text tronsmission and 21% said there would be a substantial change in their communications plans because of Viewdata.

A typical comment was, "If a cheap, flexible, Post Office-rented terminal with a built-in modern arose from Viewdata we would seriously consider using it for our larger networks."

The result of the survey has been sent to the.
Post Office, the Corter Committee and the government

A fully-tabuinted report will be available soon at £3, or £2 to DPMA members, from the DPMA, 27a York Roud, Maldenhend SL6 ISQ or from Lungton Information Systems Ltd, 74 Newman Street,

NEWS IN BRIEF

Abu Dhabi

A PERMANENT showcase for

British products is to be opened

in Abu Dhabi in a bid to win

business from the oil-rich United

Arab Emirates, Exhibits will be

on permanent display at the

two-fluor centre and open to

Sites are booked on a one-year

renewable basis at a cost of from

£2,500. Buck-up marketing

FRENCH weather forecasting

body Meteo France is to install a

Control Data Cyber 175

alongside its existing CDC 6400 installed in 1967. The 175 re-

places a Cyber 74 installed in

1972. It will share 2.5 million

AN order worth £100,000 has been placed with the Turnkey Division of CMS for a 160K DEC

DataSystem 537, by Avlmo Ltd.

optical and mechanical engin-

eers of Taunton, Somerset. The

system, which will support eight

terminals, is due to be installed

European Computing Services

Association. The survey

analyses the processing, con-sultancy and data praparation

countries and gives details of

service companies. It costs \$60

to members and \$210 to non-

members from Quantum Science Corp, Norfolk House, St. James's Square, London SWI.

CASH and carry wholasaler,

Makro, hos placed an order worth £105,000 with Kode for 14

Datanet terminals. These will be

used to transmit sales data from

the company's six warehouse

to its haadquarters at Manchester for overnight pro-

Kode wins order

characters of extended core

storege with the 6400.

£100,000 order

services will also be provided.

Weather system

view six days n weck.

Sheffiald L

Birmingham M1

Manchester

Shop window

Installation guide for the layman

part of the Input Two-Nine different company departments. series on current aspects of computer technology.

Alan Simpson, both officials of the Dala Processing Maagement Association,

mio the reasons for installing a computer. One chapter explains software packages, turnkey sys- the less. tems end in-house staff, bureau services, finance and the second

Al AYMAN's guide to Installing maintenance, standby, security a computer has been produced and management. The appenmaintenance, standby, security for directurs and senior mn- dices list questions designed to nagers of small businesses as reveal the information needs of

The guide is comprehensive in the range of topics it covers and e guide, Computerisation would make valuable preliminfor the Small Business', was nry reading for companies written by Edward Cluff and buying o computer for the first

Perhaps two failings of the book are that the chapter on It starts with basics, going costs deals in general terms rather than giving examples of costs, and the absence of useful files, batch and interactive pro- nemes and addresses. Organicessing and distributed com- sations like the National Compuling in simple terms and the puting Centre, for example, are guide then moves on to selecting mentioned only briefly in pusa computer, choosing between sing. But It is a useful book none

Computertantion for the Small band market.

Chapters on running the computer look at data preparation, iopul, operating costs,

BIS profits doubled

A 53% INCREASE in turnover recorded by Business Intelligence Services, the UK consulancy, market research and training group, in its financial year which ended on February 28. The group expects similar growth in turnover this year.

Turnover went up from £1.7 and a doubling of profit was million to £2,7 million in 1076-77. Pre-lax profit rose from £142,000 to £355,500. Overseas business

accounted for 35% of Income. First survey During the year the group FIRST annual survey of the Euopened a New York office for BIS Software, and a Sydney offropean computing services in-dustry has been published by the ice for BIS Marketing Research.

Computel

would like to express their appraciation to the 250 sanlor computing axacultyBa who last weak atlanded the four one-day prosantalions 2900-Tha Compuls Exparlance' at our naw Computer Cantra Wa thank tham for their interast and look

forward to halping tham kaap up with the changing compular scana.

compute Where we build on expartence to sal the page

· 中国 (1940年)

CTL installation

A CTL Model 8030 computer system worth £60,000 has been installed by Michael Davis (Shipping) Ltd of Richmond, Surrey: The system consists of the CPU 48K of memory, paper tapa reader, cartridge disc drive, four VDUs and a printer.

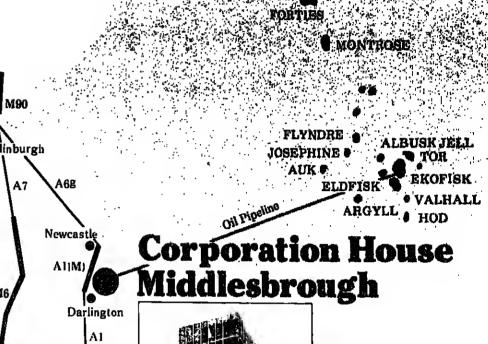
Oroffshore activities...

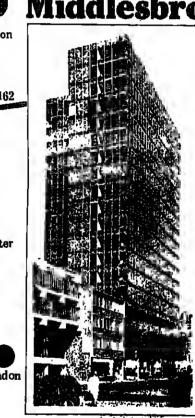
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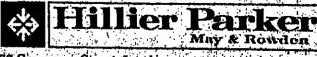
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HC 110 version of the Phonic Mirror Handtvoics is capeble of producing nearly 500 words for the vocally impetred, all from a besis of 45

BASIC ALGOL

This is a fully revised and updated varsion of an already

well-astablished primer in Algol programming. It is

dasigned for thosa both insida and outside tha

computar industry and takes the reader step-by-step

from a dascription of tha binary system through Algol

60 to a point where the language can be used to write

practical programs. £1.10 inc. postaga and packing.

BASIC PL/1

PL / 1 is an open-andad language which can be adjusted

lo meat the damends of new hardware end systams.

There is, therefore, no "basic" varsion, but to give

beginners a guide to the language this book has been

basad on a subset of PL/1 implemented under DOS.

This deals with only a limited number of features of the

languaga but navarthalass, providas a sound

Talking device for vocally impaired

THE printers of communication faced by people who are non-verbal and non-vocal are tislly unlimited vocabulary and operation is by using the required overlay over the discontinuous are similar to those among the most severe of any handicapped group. Hence it is interesting to see the Introduction in the US of the Phonic culator type keyboard ns the luput medium for a three-digit Mirror Handivoice, a microbased tool almed specifically at code that can be used to reproviding speech com-

inimications capabilities to thia Being marketed by HC Electronics Inc. a subsidiary of the American Hospital Supply Corp. the system has been developed by Votrax, a company which specialises in phoneme-based speech aimulation equipment.

Two types of portable, battery operated units of Handivoice have been developed.

The HC 110 usea a lap-board approach to aerve the needs of the developmentally disabled user. It incorporates a 12g-key display area and up to five display area overlays, each of

It is pre-programmed with 373 words, constructed from a basic atore of 45 phonemea and 16 short phrasea, such as "My name Also included are 13

BASIC COBOL

This clear and concine introduction to the most widely

usad commercial computer language, providas tha

newcomer to programming with e comprahansive

Based on Cobol 65, tha taxt anables the student to gain

sufficient knowledge of the language to write simple

programs in praparation for mora advanced studias.

FORTRAN BASICS

This book is designed as an introduction to Fortran lor

thosa who are nawcomers to programming but who

have a knowledge of elementary algebra. It takes the

£2.20 inc. postaga end pecking.

This new impression of the second adition is priced at

ABASIC BOKS

For programmers and computer users

play area and pressing the keys. The HC f20 unit is for more experienced users. It uses n cal-

of HC t10.

In Europe, they will be available through Phunic Ear Internationni A/S Formervangen 34, DK2600 Glostrup, Cupenhagen,

Shape of products to come from Motorola

the microprocessor industry, with the news that Motorola is joining Zilog and Intel with new product introductions including a 16-bit device to be known as

Definita introductions by Motorola next year are to be the 6809 and 6801 proceasors, both which assigns a word phrase or pictorially represented word to seheduled for sampling during the third quarter of 1978.

The 6809, still officially on the Motorola "eeeret llat", haa been designed as an upgrade of the 6800, 8-bit processor. Source program compatible with the 6800, the 6809 will be equipped morphemea, which are word with an increased inatruction set prefixes and suffixes, and the 26 of 80, and will have 348 operator ietter Engliah alphabet.

This givea the unit a potendevice, the part will be able to

equipped with the nbility to address various registers as one, rather than individuals.

It will also be equipped with three extra registers, one of which will be no extra Index at the single chip control register. The device will also have a new bus structure allowing faster operation. II modes of addreas, and the facility to do up to g x 8 multiplication. Division capabilities, however, are not provided. Direct memory addressing ca-pability is 64K bytes, although memory addreasing over this figure is said to be easy using a

page mode. One of the mein areas of use for the 6809, as seen by Motorola, is in applications utilising very high level languages where a "super" compller is required. It is seen as eminently anitoble for

operations with such largers as Fortran and Cobel.
The second introducion is

6801 processor, is also some program level compatible to the 6800 device. Almed square 1/O structure, based on 2814

Still under wraps and with definite introduction de beyond "the end of the ru year", the Motorola Advand Computer System, 15 bit pic-cessor will be joining the 104 equivalent" atakes with a pocessing power that should be equivalent to a PDP-11/45 k sources indicate, it will certain, be a complex part and will as tain around 100,000 devices

Byte Shop chain to stay independent

THE news that the Byte Shop computer industry and in a . chain of retoil computer stores in the US has been purchased by the Logicul Machine Corp (CW, November 24) due to "experienelng capitalisation problems despite a brisk sales pace", can be taken ns a sign of the pro-blems involved in bringing high technology into the high streets.

There have been reports from the US that all may not be as well us it might be with the growing number of computer oriented retail outlets that have sprung up across the Atluntic. Such reports have indicated that the overall level of business hus stabilised, and in some cases dipped, while others have shown that sales have shifted towards ndd-ons and periphemis rather than processor systems, thus indicating that the initial system inniket has been filled.

Trends such as these, not uncommon in an untried murket, enn often require considerable finance to overcome, and it is therefore not surprising to see for its Adam computer system. new finance coming into n of which 350 have so far been potentially lucrativa long term

It olso makes aense for that the Adam operations, and will be finance to come from within the run as an independent business.

John Peers said, "We decked: extend our penetration int orens where conventional ma keting costs do not allow # crocomputer systems to be a ectively sold and supported. It tiny first-thue business user at the personal domestic markeare examples of these sectors

Logien1 plans to invest but money and expertise in the Butchain. "There is no alternative expansion," Peers said. "We atgoing to open up as many pro-fessional and well-funded retain omlets wurldwide as we possibly cun, and we are seeking peop with the knowledge and ability ta jain us."

Peers sees the purchase as en arging the scope of Logical's operations, moving the comduwnward towards micros.

The company is best known inatalled. The Byte Shops, however, will not be lotegrated into

THE proceedings of the first international Microcomputers, Minicomputers and Micro-M

Minicomputers and Microconference, held last June, in Geneva, are now ovailable from IPC Science and Technology Press.

Comprising a complete record of the technical aessions of the conference, the book provides information on auch topics es coatings and economics of mleroprocessor based products, mlni-mlerocomputera in real

processors, higher-level lange ages and programming an trade-offs for mini/microcom puter selection. International Microcom

puters / Minicomputers / Minic

Course announcement

"ASSEMBLY Language Programming for Microprocessors" in the title of a two-day coursa to be held at the City University. London, on Decamber 15 and 16.

The chief will be a superior of micro development system. The registration for including lunches from the limit of the chief will be a superior of micro development system. The registration for micro development system. be held at the City University, London, on Decamber 15 and 16. The object will be to provide

15 delegates: % practical exparience of the writing, esaembling, and execution of programs for mioroprocessors. A crose-essembler and simulator will be trical and Electronic gineering The Civilian St Johns Sines 188 Telaphone 01 258 1888 evallable for use, and the course will include hands on oberation.

Evaluation plans for Mickie and Mavis and be based on the Zilog Z80 cial Security, and five models Jones, Lahour MP for Eccles.

nudlo visual equipment developed at Loughborough University and the National Physical Laboratory (CW, September 15), are to be built by Ferranti for evaluation.

These will incorporate either floopy discs or bubble memory.

inicro. First production models are expected to be ready by the middle of next year.

Another NPL project, Mickle, the hospital patient interviewing system (CW, June 9), has received backing from the Department of Health and So-

have been ordered for evaluatlon

Meanwhile in the Commons the possibility of severely hundicapped people being provided with computer terminals or VDUs in their own homes was suggested by Lewls Carter-

Commenting on information "The difficulty is spreading nbout assistance provided by the the knowledge of what is pos-sible." he snid. "It needs Training Services Agency to train disabled peuple ns pro-grammers, Mr Carter-Jones said motivation on the part of the

printer and CAT costs \$18,600.

Rather than being based on

the information processing sys-

tem, which is written in an inter-

active language called Small Talk. That language and the rest of the system is based on con-

cepts attributed to Dr Alan Kay

The 850 family and other work

done at the research centre can

perhaps be seen as interim steps

towards what Dr Kay calls Dy-

nahook, a personni computer the size of a hook with the power

of today's fast minls.

an extended trial.

disabled and the will to help hy he wanted a lot more done than employers." In his reply, Mr Grant said that he had been told about by John Grant, Under Secretary lor Emtraining in computer program-ming was available under the **Xerox moves into** Training Services Agency's scheme in colleges of further education, private colleges and

with computer manufacturers. "In nddltion the TSA is sponsoring two pilot courses in computer programming on a residential basis in co-operation Xerox in the UK says that an with the BCS specifically fur 850 is being installed with a cusseverely disabled people. tomer at the end of the year for "Computer training for visu-

work done by the text procesmude between the TSA and the sing tenm at Palo Alto, the 850 is Royal National Institute for the said to have derived from studies carried out by a group which has Mr Cnrter-Jones sald there heen looking at ways of using computers to aid learning. should be more residential

courses like the two being run The command structure of the 850 system is a close cousin to

and rentals and services by 6.9%. The costs and expenses of rentals and services are just about static at between 36.5 and 37.3% over both the three month and ally hundicappped people is nine month perinds, but the cost per sale is falling. Costs and ex-penses for sales in the three available through arrangements inunths to September 30, 1977,

Swing from

grows at IBM

The trend away from rentals and

towards outright sales at 1BM is

accelerating. Comparing the

three months to September 30,

1977 with the same period in

1976, sales grew by 35% but ren-

tals and services grew by only 5.7%. Comparing the nine

months to end-September 1977 with the same nine months in

1976, the trend is less marked

but still clear. Sales grew by 19%

rentals

were 30.6%, down from 32% in the same three munths of 1976. This fall is attributed by IBM to a change in the mix of products

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The 24-cheracter etrip display on the Xerox 850 word processor enables lext to be edited before being printed out. Each of the unit'e two lioppy discs can store 140 pages of text.

OP SPOT By Bernard Allen

The power game interrupted

THE lack of standby power supplies in computer installations was brought into focus by the recent power cuts.

These had a troublesome, rather than disastrous, effect o omny of the Installotions to which I spoke. Many expressed annovance at the inconrecience, but they had been able to overcome the problems with varying degrees of success and difficulty.

In retrospect, has DP management in general learnt anything ol value from this episode, and would it be better prepared to deal with a similar ituation in the future?

According to David Rees, project co-ordinator of the Standard Chnrtered Bnnk We have a ganerator and I don't see us changing our procedure much at all.

"We may be looking at no-hreak back-up sources in the inture, because we are planning to increase our kit. Also the bank's dependence on computing is increasing and the cost of no-break systems is becoming more reason-able," he added.

The majority of installations ave no firm back-up power. Such sites, Thames Polytechnic is one, are entirely at the olercy of cuts and are forced to

operations, monoger at the Poly. There is nothing we can do about the situation because we connot efford a ganerator and so will be in the same situ-

ation next time." A survey by IDC Europa points out that the power cuts have prompted DP managers to take a closer look at the various standby power systems available.* It states that 13% are considering some sort

of secondary power source (see Table 1). The survey concludes that

Ganarator 31% Genorator and etatic invertar Mobile generator 3%
Planning to use standby power Stendby not used 66%

for powar cuts?

tha lack of reserve electrical power sources can be at-tributed to a lack of foresight in planning an Installation, and tha small percentage of the DP budget that is dedicated to so-called environmental equipment. It is estimeted that only 1% to 5% of the DP bindget is allocated to computer room

It is clear that many users are unoware of the various faults and Inefficiencies of electrical supply, and it is wait until the power supply is should chack that incoming resumed, or close for the day.

Comments Brion Fletcher. suggested that new users

*The Market For Computer Roam Equipment in the UK £145, IDC Europa Ltd. 2 Both Road, London

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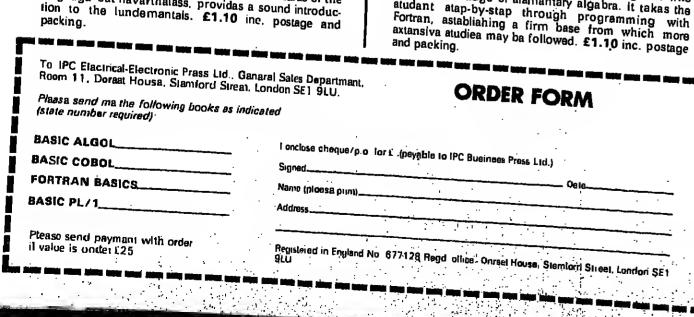
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£50m boost for micro industry

• From front page

on the Miproci6 16-bit board system. Extremely fast for a micro. et 2.85 million instructions per second, the system is aimed primnrily at the military and high speed communications worldwide activities in the fields

Also aiming at the military, Ferranti has the F100-L aingle chip, 16-bit micro. Held up for a while through the lack of the interface chip set, the device does have chances in the commercial market. Its main problem is the lack of a second source for ita production process. GEC Semiconductors is not in the main stream of menufacluring, and bases its operations on its egency agreement for the on its egency agreement for the intel family of processora, and is California.

language compiler for the 8080. • Following recent market developments, the Plessey of computer memories, minicomputer add-on memories and peripherals, and microcomputer systems, previously convered by Piessey Memories and Piessey Microsystems. The me-

mories and microcomputer activities will now be operated as Plessey Microsystema, based at Towcester, while the minicomputer add-on and peripherai operationa become a new company called Plessey Peripheral

& 0 time sharing service

LATEST user to plan a time sharing bureau service is the will be chiefly for the group's P&O shipping group. To handle own subsidiaries, many of which the service, the group's London office is expanding its mainframe from nn IBM 370/135 to a have access to the P&O 370/148. The VM / 370 opernting system will be added to the to be provided will be APL and DOS/VS currently used.

Objectives:

computer staff.

To provide DP Managars and

Personnal Officars of firms using computers with an ovarview of

current practice in the recruitment of

Shortaga of computer staff is a

roblem which feces all computer

uaers. A isck of qualifiad personnel is

exacerbated by the mobility of

computer people and their apparant loyalty to the job rather than the

in these circumstances recruiting

sultabla steff posas particular

problems: How does the user set out

to attract staff? How doss ha

advertise effectively? How does ha

manage the aslection process?

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thase queations end to indicate what

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the use of contract staff a viabla

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rocruitmant policy.

at present use external bureaux, Outside users will, however, machine. Among the languages

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Solving the

computer staff problem

The Cafe Royal, Regent Street, London Thursday, January 19th, 1978

Introduction: The computer scene and computer people. Who sie they? What eta their characteristics? How are they mollvated? Can aupply ever catch up with demand?

The user's viewpoint Finding s wey through the rechvirmant jungle. How can the computer user act effectively to obtain the staff he neede? He wshould he set about recruiting staff? What ere the pitfalls? Pfanning staff recultment and development rether their reacting to crists eltustions.

The role of the recruitment agency: Idantilying uses a stell requirements. Specifying the pest. Oraling the advantagment. Vetting the candidates. Giving the user the benefit of specielist knowledge of the job marker.

no recursor assessment and the can provide a sease applicants qualifies can provide a sendardised basis los selection when compered will netional norms — thus providing a usaful sid in

How to advantage for computer stell. Specifying the job and the working environment. Writing the advertisement. Adopting a result approach to just advertising. Media selection. Mayorising response.

Session 3:

Session 5:

a major UK outlet for the device. it was the first company to produce a resident high level

most exciting contest yet in the annual series of North American Computer Chess Championships. Chess 4.6 and Duchess drew in the fourth and final round to finish with 31/2 points each and thus share the title. Outaide the tournament proper, Chesa 4.6 played four

games against the US speed champion, iosing three and winning one. Internotional Master David Levy played two speed games against Chess 4.6 and one against Duchesa, losing all three. in "speed" chess the machine Is aet to take an average of five seconds to aelect each move. The human must complete his

first 60 moves in five minutes on his clock. if by then the machine has not either mated or announced mate the human player is the winner. Greatest aurprise of all, David Levy gave a simultaneous display against seven of the pro-

THE October meeting of the ACM in Seattle produced the reports on the North American Computer Chees Chamreports on the North American Computer Chees Championships, end provides a critical commentery on the game in which intamationel Maeter David Levy loet to CHESS 4.6. Mr Kopec is et present e poat-graduete atudent in the Department of Machina intelligence at Edinburgh Universional With al least some look ond with al least some look of the poor look of the poor look in t

Machine victory

against Chess 4.6. Here Is how the game went, with some of my comments on the game.

GUEST CHESSLAB

White	:	Bisci
D. N. I	L. Levy	Chesa 4.
i.	P-Q4	N-KB3
2.	N-Q83	P-Q4
3.	B-N5	P-KB3
4.	BxN	KPxB
5.	P-K4	PxP

it ia now like an Exchange Variation of the Ruy Lopez (1. P-K4, P-K4 2. N-KB3, N-QB3 3. B-N5, P-QR3 4. BxN, QPxB 5. P-Q4, PxP 6. NxP etc.) only here White's 4-3 majority is on the grams and managed to lose, Q-side, so Black's pawns are

The OP Menager. Picking the right man ler the most responsible job in the computer dapt Fawer in number than other categories of computer staff, good OP Managers are worth their weight in gold. The post demends a mare ageneralist, less specieles approach than programming and systems enelysis Spotting these with potential requires a keen over an awide ranging knewledge of the business. Fitting this key pest is a task for a reputable recruitment bureau.

Contract Safi. Increasingly contract staff are being used to overcome work battlanecks, help in conversion programmes, etc., es well as compensating for varietions in staff availability due to holidays and sickness. Now the use of contract staff is such a wall-setablished feature of the computer scane that it mants inclusion in an overell applicated in the recruitment problem.

Melhaining standards in the tecruitment business.
The CSA has ostablished a racruitment division whet are its oims and sch-avements? A consideration of the code of conduct.

The speakars will include Teny Millor of Furnaes Withy. Osvid Payno of Tasco John Wood of EMS: George Penney of the NCC: John Geldemith, ten Humphries of Knight Computer Section of UCC, chairman of the CSA Retrutment

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more of n menace to White's king if he castles K-side; there is leas plece protection to the White King on the Q-side.

DANNY KOPEC

Winning Black's ORP.

This is premature. White should

immediately pounce on the Rewith 32. R-QRI.

Now it's too lale for 34 R-ORL

31. BxR

35. B-85 36. Px8

if 37. R-K7, R-QRI elc.

What could be the point? But & 39. RxP, then R-B5 ch!

If 40, K-R5, then ... R-QB5 and

White is just about moveless (

Black: Chass 4.5

1 1 1

TIF FIF

Whita: D. Levy

Fig. 1: Chess 4.6 v D. Lavy in this position Chess 4.6 played?

R-K21 Shall we call this positional or ractical play? White is

dofencalass egeinsi P-83 which will win more meterial.

40. K-N3 nr B3, then ... RxP ch

R-ON4 ch

K-N3

P-KB4

42. R-QB ch K-R2

B-07

K-N4

K-B4

46. Rx8P

47. R-Q7

4B. Resigns.

wins easily.)

1. 且 五日本

RxP/K64

K-N4

39. P-84 7?

40. Kxp

	_	
		N-83
7.	P-Q83	Q-K2
8.	Q-K2	8-K3
9.	N-85	8-04
n 96	tino	

active inove, indirectly protecting the QNP, Black is not i.e. 34 ... R-R1, 35. K-N3 BX1 ch and ... P-R7. wasting any time putting the

10,	0-0-0	QxQ
11,	NxQ	BxN
12,	Px8	BxR
A SOU	nd nawn	-

not behind in development and the pawn formation was already balanced. Unilke Spassky-Fischer, Game i, 1972, Black's bishop is in no danger.

13,	N-Q4	NxN
i 4.	RxN	0-0
i 5.	R-Q7	OR-Bi
16.	P-OB4	A

This is an unsound attempt to trap a bishop that cannot be trapped. White's hishop is hemmed in and his pawns are just weukened. Much more to the point is 16, P-B6 taking advantage of White's only trump he rook on the 7th. Then if 16

Notic	ce how	P-QN3, 17. B- that motif is d move played.
18. 19. 20,	P-B3	8-R5 8-B3 R-K4
Black	now ha	as n positinnal

vantage in addition to on extra pawn. White's bishup hos become distinctly had with mnny pawns potentially fixed on its

21. 22	P-QN4 B-Bi	R-N4
22.	R-R I	P-QR4
	e	

A superb lever. Just what is needed in destroy White's Q-side pawns or creute a passed pawn. The questinu: "Is Bluck's forthcoming passivity only temporary?" needs to be answ-

23. p-R4

if 23. P-B4 instead, then 23 ... R-N5 and ... P-KN4. But as played, Black's rook is only driven hack to a better square ond White has further wenkened

24. P-N5 B-K1 25. R-Q5 R-K2! (see Fig. 1)

Superbly handled. Who says Chess 4.6 is only a tactician? This fine move is multi-purpose. White now has no answer to the positional/tactical stroke . . P-B3. The Black blahop can now get out via Q2. Black's activity will improve as he (it) gobbles the weak White pawns.

To sum up. Rather than cling Chess 4.6 positional or in tical, I would call it as 16 pressive materialistic player Here the human Master given a pawn-structure and end-game lesson. We must

cognise that it was a simul taneous game, and that Lay may have been very fired. The reader must not jumps the conclusion that Levi thereby lost his celebrated by which specifies full maid of conditions. But it would not surprise me if some books were now to shorten thek odi

for side-bets!

Expanding operations

HAVING based ita early activity on aeiling Diablo printers and terminals. Zygul Dynamics, uf Chesham, is now expanding its operations by taking on the exclusive distributors in the control of the processor backet up to the control of tek Intelligent VDUs end also distributing DPS Datamoster ware for certain all light and will at storage and editing units.

Example held in the objects of read/wate members were for certain all light and will at soon as in the column ware for certain all light wa operations by teking on the ex-clusive distributorship for Zen-tek intelligent VDUs end also date storage and editing units.

The held in the colontry the said, are Zenter franchise

How did you get your job?

advertised in a newspeper; they hear about a job from a friand or "on the grepevine"; or promotion is offered. Computer eteff ere luckier then moet bacause thay can often choose a job to suit thair parsonel requirements at any particular time. Howaver, most paople teke jobs that involva the leest dieturbence to their home life, and if they do move it is usuelly to e compeny within reseanebla travelling distence. Computer Weekly is cerrying out a survey of the way in which paople find jobe, with

Reeders who wish to take part in this survey should enewer ell the questions in the questionnaire below end return it as soon ee possible to: Job Survey, Computer Waekiy, Dorset Houss, Stemford Straet, London SE1. Those readers who are willing to participate in a followup to help with en snelysis of replias should add their nama end address. All Information recalved in this survay le strictly confidential and will not be ralaesad by Computar Weakly to any third party.

. How meny joba, with diffarent amployers, have you had in the last five years?	
How many of these jobe wars obtained from: (e) An edvartisement by your present employer in the trade prese? (b) An edvertisament by your present employer in the national press? (c) A recruitment company? (d) Other?	
. Heve you aver used a recruitment compeny?	
. If NO would you use a recruitmant company in the future?	
. If you have never usad a recruitment compeny — why?	
lf you heve used a recruitment company (a) Did the company epacialiss in DP or general vecancles? (b) Do you prafar epacialist DP or general recruitment companies? (c) Do you prefer to reply directly to an employer or via a third party, such as a recruitment company?	
If you would a secondary and common builting of	

Pleesa atete opinion for each catagory.	cete the quality of the service provided in the following areas

		Bed Indiffere		
Weil Informad on a epecific company/job advartisad Widar choice of joba available Availability of Impertial advice on jobs Esay eccase to ralavant job opportunitiea Provision of objectiva end sound cereer guidance Confidentiality of personal information Genarel ettituda and atandard of sarvice				
what areae would you like to see Improvements in the vice provided by recruitment by recruitment consultants?				

service provided by racruitment by recruitment consultanta?			 • • • · ·	• • • •	• • • •	
9. Whet is your currant job titla?			 			
10. Where do you live (town/country)?						
Plessa add name and addraea if you wish to take part in a follow-	-up Inq	uiry:				
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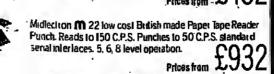
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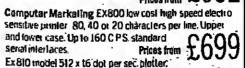


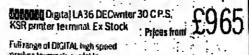
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FINDING THE RIGHT STAFF

computer staff and have come to the conclusion that there is no easy solution to the problem of flading which uses systematic tests to

There is no easy solution. Out, depending upon the way in which you trake the recruitment accethan others.
A Computer Weekly seminar,

A Computer Weekly seminar, entitled "Solving the Computer Staff Problem," aims to show how this can be achieved. While not attempting to provide a facile solution, it will nevertheless indigate how the computer user can set out to formulate a more positive recruitment policy.

cruitment policy.
The saminar, which is being held on Thursday, January 19, 1978, at the Cafe Royal, London, kicks off with an examination of the purpos on Thursday, January 19, 1978, at the Cafe Royal, London, kicks off with an examination of the garrent recruitment scese, paying particular attantion to computer people and their motivation. Having ast this scene the noxt setsion will look at the problem from the user's violeyoint, with David Payns, a personnel officer with Tesco, explaining how his company gets to grips with the staff problem.

Then two senior executives from different types of organizations—as recruitment bureau and any source the New Year on a positive note itsing agency—will expisit how the seminar by contacting Christiang agency—will expisit how the seminar by contacting Christiang agency—will expisit how the seminar by contacting Christiang agency—will expisit how seminar by contacting Christiang agency—will expisit how the seminar by contacting Christians and their motivation will object the seminar by contacting the seminar by contacting Christians and their motivation will object the seminar by contacting the seminar by contacting Christians and their attention will object the seminar by contacting the seminar by contacting Christians and achieves monte.

The staff computer Staff.

Finally, a group which is trying to bring some order to what is in some ways a chaotic situation will object the seminar and achieves monte.

Neville John of OCC, cleitmax of the case of the contacting the seminar and achieves monte.

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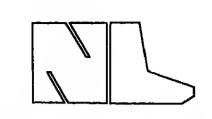
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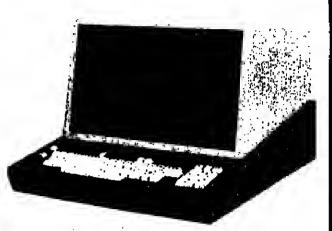
known recruitment consultant, will look at the problem of picking the right man for the job, and will ask whether there is an adequate career structure for DPMs.

The increasing use of contract staff, not just to overcome work bottlenecks or to help when peak workloads occur, but also as a more permenent feature of the job scene, will be examined by Ian Humphries of Knight Computer Staff.



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Systime on way to No 2 position in UK

By John Kavanagh

AT the end of last year Systime predicted that in 1978 it would become the UK's aecond biggest computer manufacturer. Al the time that looked a rash statement made in a state of euphoria by a company which had just increased its turnover by almost five times in three years. After all, the turnover was still less than £3 million and the company

Please tick the appropriate box):

Almost a year later Systime stands by that prediction, and well it might. For turnover this year is up to £4.5 million, the National Enterprise Board has bought a 26% stake in the company, giving it £280,000 immediately and £700,000 to aupport development over the next three years, and planned moves into Holland and Ger-

many are expected to help boost turnover to £10 or £11 million during 1977-78 and to £12 or £14 million the year after.

The term "computer manufacturer" needs qualification, perhaps. Of the 15 to 20 circuit boards in a Systlme series 5000 for example, only two, the Digital Equipment PDP-11/04

using UK-made components.

"Can you say that thia is not a Systime computer?" asks Nick Willard, marketing manager. "We could make the processor and i1/34 processor boards, are boarda tomorrow, but who

by Systime. All the others memory boards, interfacea and peripheral controllers - are designed, assembled and tested at Syatime's factory in Leeda

not designed and put together wants to get involved in



products in their own right.

to 20 by the end of next year.

Data Recording Instrument supplies matrix printers and cartridge disc drives. Faster printers and higger disc units cume from Control Duta and Memorex, but Systime says that 80% by value of the comprinents of its systems are made in the

Systline is now in the middle of a massive expansion which really began towards the end of 1975 with an order worth over £3 million from British Leyland for series 5000 systems for its illstributors (CW, December 18, 1975). Willard describes that order as the first big breakthrough and olso mentions another big order fur the series 3000 from Littlewoods for word processing (CW, May 13, 1970).

During 1976 Systime bruught Ita assembly work in-house. By the end of September lost year ataff numbered 147, and by September this year, the figure was 225, and in o year's time it ia expected to be 340.

The factory is being expanded inree floors and a bla research and development laboratory is waiting to be fitted nut.

Last year the company added Birmingham, Bristol, Glasgow and Leicester to its network of offices which was previously limited to London, Manchester and the headquarters in Leeds. It

THE aystome available from Sys-Por just over £50,000 the bay cen get a saries 8000 with like of memary, 80 Megabylar of diao, a 400 ipm printer and its diapley terminals. tima etart with the earles 1000, which is built eround the Digital Equipment PDP-11/04 processor. Prices etart at £19,500,

and the system can support up to 9.8 Megebytes of diec storege, e 150 characters per second metrix The new series 8000 k band on the PDP-11/80 end on support SO terminets. Prices that at \$100,000, and Systime super the Comments with printer and three displey terminale.

The series 3000, elso besed on the PDP-11/04, eterte at £18,500. This system can heve up to 258K bytes of memory, 1,600 Megabytes on dier, a 800 lines per minute printer, eight tape drives and eight terminels.

The earles 5000, besed on the PDP-11/34, eterts at £28,500. Its disc copacity is eight 80 Mentes. this system ta compala will machinee up to the power of at 18 M 370/138 and 370/148, of

Softwers peckeges availible include seles ledger, parchase ladger, naminel ladger to payrall.

ita disc copacity is eight 80 Me-gebyte drivse end it can eerve four line printere and eight tape drives. Systime elea has an integral stock cantrol system, with ledger, order entry and part to ploation systems built-in.

developing operating systems? Chairman, John Parkinson Besides the PDP-11 is still the "Anil when you have the change best ininicomputer around. It's uf growing faster than is god so versotile, and DEC kceps it up both for you and the customer It is hard to exercise self-re-Systime also builds its own display terminals from basic nuts and bolts and aells them as some service with a turnover £16 million as it did with a turnover of £2.8 million." And even the processor and

peripheral cabinets and chassis, There are, at present about storage bins and tables for 230 Systime computers installed terminals are bashed out of Parkinson estimates that about sheet metal in the company's 60% are series 1000s, 25% are own factory. This work was 5000s and the rest are 3000s. The contracted out to a three-man company has just announced the 6000 at the top of the range company, but Systime bought that company last year ond it has since expanded to nine and expects to install six during the current financial year.

people and will expand further Many of the users have matured from first time user to Systlme buys in peripherals, experienced people. "We'te rying as far as possible to use getting into more sophisticaled areas now," says Parkinson "Our first Installations are now upgrading their systems. We have five users who have systems linked together and there are likely to be more asour

users get more experienced" What effect has belonging to the National Enterprise Boards Insuc Onta Systems had ea the running of the company? "We've had no interference a ull," says Parkinson, "The NEL undertakes not to get involved in the day-to-day ranning There's a small restriction, the is a ceiling on the company total borrowing of 34 times the reserve and share capital. This gives us a horrowing potential

"As far as the £700,000 s concerned we prepare an annual operating plan and a five-year thur, and we can draw on the



money to carry out the plus This year's plan was approved by the NEB with no amend-

Is impressed with inset "They're very keen to learn," he says, "and very quick to read You can get a decision in You can get a declaration in the principle on something in the hours: It doesn't have to get through endless committee And the chairman is easy to get to."

and the headquarters in Leeds. It also moved into Holland through an agreement with a software house in The Hague, called Multi-function, which takes three systems a month.

The National Enterprise Board's investment is giving the company the financial strength to form aubsidiaries in Holland and Germany, and it expects to attack the Baigian market from its Holland base.

Systime haa also moved into the OEM market in the last year and between 25 and 30% of its output goes to systems builders.

Systime is staying level headed about all this expansion: "We could have grown faster but we've chosen not to:"

It was Gow who such to."

It was Gow who such it was systeme support of Directions of the north of English and in the north of English in the north of

Courses for Games workhorses? people I READ, but with not much int- and are, encountered in any

erest, the article on computer system whether it be manual, ducation by Mr Roy Atherton (CW, November 17).

I AM collecting details of com-puter games, interesting computer-produced pictures, Like most academics, he misses the whole point about computer education. What is needed is not training in computers, but education in data proceasing. Most people will come into computers in industry, government and public services where the computer is primarily used for data storage and file handling.

What should be taught in

schools, and what people ahould e made aware of, are basic problems such as the storage and classification of data, the use of codes and keys, and the different access methods to files which are available.

All these problems have been

THE EDITOR welcomes latters commenting on subjects pu-blehed in Computer Weakly, or on original topics. All letters must be accompanied by the writer's name and address, not sacessarity for publication.

B Elgar House, Fairfax Road, London NW6 4EX. Micro-mania plea: No whizz-kiddery

IHAVE been reading lvor Catt's could really be offaring the cus article on microprocessors (CW, tomer If we got the act right. November 3). No, I'm not a very slow reader - just very busy!

etc, for a forthcoming book en-

titled "Directory of Computer

Ganies". Your readers are in-

vited to send the following de-

tails of computer games they have written, for inclusion in the

3 Programming language

5 Machine used (core size,

penpherals, operating system).

6 Any other relevant details.

7 Author's nome and address.

8 Approximate price (if any).

Needless to say, all entries wil

be free, and the intention is that

prospective buyers of games will contact the authors directly.

MICHAEL SCOTT

i. Name of the game.

4 Input media.

2 Synopsis of the game.

directory:

I'm not sure, at the end of it, whether he is simply arguing for better designed micros or whether he is arguing for some altogether other approach. His piece Is so Immensely readable in destructive mode.

Could he (and CW) be prevailed upon to give us the other side of the coin, i.e. prescriptive mode?
As a simple-minded salesman, who is daily reminded that all the customer really wants to do is to soive his problems without whiz-kiddery getting in the way.
I would dearly love to be told
what it is that Mr Catt seas we
Nottingham

mania are probably right, but not being the technologist, merely a horny-handed commercial pragmatist, I am in no position to shout too loudly. But if Mr Catt (and others like hlm) who are technically competent could show the way, then I (and

I hove a gut-feeling that his

strictures against the micro-

others like me, not to mention the precious, money-paying customer) would create the

Gamma Associates Ltd

When comparison becomes odious ALTHOUGH my company is groups where problems such as

sometimes in direct competition with ICL, I fall to understand and 2970" (CW, November 3), ahould appear on your front page. I must congratulate Professor

David Barron on producing such e results and diagnosis mance of the two machines. However I think he would serve by helping them to soive any problems that he might have found rather than be seeking to appear on "What the papers

Manufacturers set up user Herts.

performance can be discussed and the sadly disappearing act of appreciate why the headlina co-operation between supplier "1907 was 100 times faster than a 2970" (CW, November 3), should As Geoffrey Reeves stated, "

. things are getting better". I am sure if customers like Professor Barron channelied more of their on the comparative perforpage publicity; things will get bettar more rapidly, and the British industry, especially ICL, British computer industry will find it easier to beat off foreign competition.

JOHN STEVENS

Option for teachers

IT is with good reason that Mr Andrew Parlitt comments that it is difficult for the teacher with little experience of computing to cope with CSE and "O" level courses (CW. November 17). He, and others facing this

problem, may be interested to know that we have been running courses at this college to meet this need for six years. This year, wa are including an option for experienced teachers to en-

midable "A" level courses in Computer Science. The course is held in June, and is "poolable which means that the cost to the local education authority is

minimal.
I should be pleased to provide further information to anyona

interested GWYN IONES
Kelsterton College
Connah's Quey, Clwyd

Painless update guide

9U9Y dats proceeding professionals who want to update themsolves fairly painlasely on what has heppanad in the computer industry over the peet year should find the computer industry Annual Raviaw 1977/78' useful reading.

The 90-page publication includes a five-page rundown of most of the important product developments and projects in each of the main sectors of the industry — mainfremse, minicomputers, small business eystems, data communications

minicomputare, small business
eystems, data communications
and services. Strees is pieced on
the continuing dominance of
IBM and the ways in which it is
reacting to threate to its esleting
merkete end opening up new Facts end figures on major

company developments during the year are presented in a elx-page eaction which contains datelle of finencial results, tekeovare, reorgeniestione, agreemente, reorgementione, agreemente, naw companies and legal wrangles.

There is also a guide to more than 50 suppliers of computer systems operating in the UK, listing the name, address and telephone number of each firm.

*Computer Industry Annual Reviaw 1977/79, 80 pp. £2. Walkar-Ellis Ltd. 87 Greet Eas-tern Street, London, EC2. Tal. 01-739 7049.

Association offers range of skills

panies with expertise in services including software and data preparation, public relations, advertising, market research, staff recruitment and training has been formed to serve computer bureaux and software and hardware suppliers.

The association is coordinated by Sales and Marketing Services, a small operation headed by Alan Williams, who has 22 years' marketing experience, including apeils with Unilever, IBM and University Computing Co.
"We want to become the Mr
Fixit of the computer industry,"

said Williams. "i'm a great believer in expertise and the association brings together more expertlae than i could set up with any amount of money. The eight companies in the association have a total of 80 staff."

Explaining the need for the association, Willams acid, "When I woa at UCC there was nowhere I could find the sort of lations services to, the computer few months' time.

industry. It's a struggle to find

Although the companies in the association do business with end user companies, the asso-ciation is concentrating on suppliers only. Sales and Mar-keting Services has offices in London and the Midlands and most of the associate companies have offices both in London and outside. Alari Williama can be reached at Wheelwright's House, Pipe Ridware, Rugeley, Staffordshire WS15 3QL. Telephone 088922 281. The London 1989 22 281. don telephone number is 01-248

DEC complex

MOST of Digital Equipment's operations at Reading are to be centralised at a new 260,000 square foot manufacturing and administrative complex on the south side of the town. It will house most of the personnel currently uccupying six separate aervices we're offcring. There are very few companies, for pleted by 1979. DEC has applied example, doing market research for, or offering good public reand building should start in a

First edition

Something unforgetable has happened to DEC's LSi-11 and *PDP 11/03 computers.

part mechanised, or computer.

and case studies to illustrate the

points, eg the way school re-

cords are kept, or further afield

how the records at the licensing

authority at Swansea are or-

ganised. Education of this sort

would go a long way towarda dispelling the quaint belief that

terms such as "acceas method"

are peculiar to computers.

Brockhouae Ltd

West Bromwich

"file", "update" and "back up"

Such an approach would re-

quire no hardware and would be

far more profitable than

teaching binary arithmetic or n

programming language like

Baalc which has little relevance

C. BRITTAIN

There are countless example:

It's the new Intel In -1611 Add In Memory system. Unit – or for more information Featuring a standard 2 wide printed circuit card up to get in touch with Rapid Recall (tel: 01 379 6741) eight times more dense than DEC's own memory system, the in-1611 represents a real advance in design and

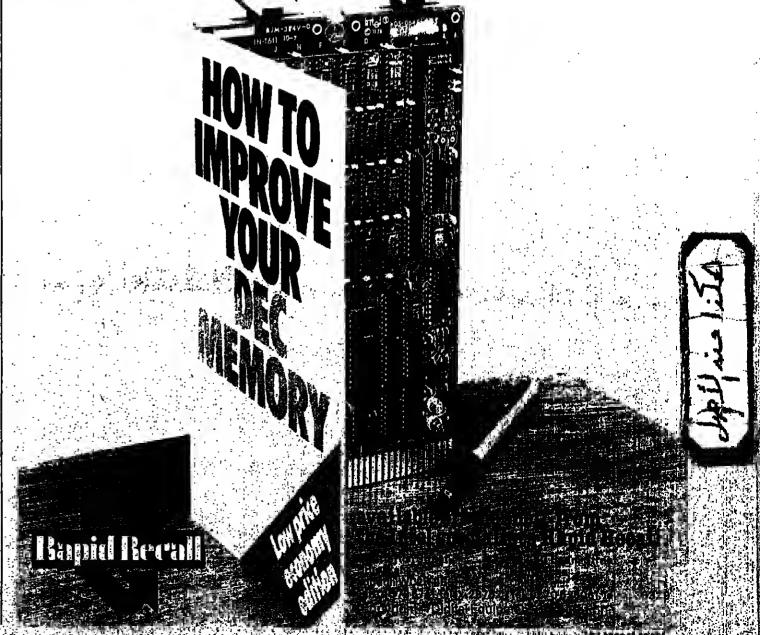
Aveilable ex-stock from Rapid Recall, the In-1611 is available in 8.16.24 and 32K models - all with access times of less than 450 nanoseconds. And all units are directly compatible with the DEC systems.

For immediate off the shelf delivery of eny In-1611

Also eveilable - In-4711 series.

This plug-in memory module provides 16K words plus parity on a single card and occupies only a single 'PDP-11 card siot. The in-4711 can be used with the *PDP-11/04, 11/05, 11/10, 11/34, 11/35, 11/40, 11/45 and 11/50.

05, 11/10, 11/34, 11/35, 11/45, 11/ The new Intel In-1611 Add In Memory.





Plass reluin ihlecauben le Chitaklinwell, Rose 12d Opini House Elemio deliga, Candon el 18.

COMPUTER WEEKLY, December 1, 1977

Putting computer power where work is

using unintelligent data capture aervices is an unfisttering, though permissible, description of electronic data processing.

Even more unflattering, though, because it's unanswerable, is the computer-knocking remark that centralised data processing departments fall to mirror their own company's organisational structure and that, in fact, long established routines have to changa their operations, schedules and attitudes when a computer appears on the premises.

Distributed processing, on the other hand puts computer power where the work is. And how to get the power of a central processing system to decentralised business locations has long exercised the skill and imagina tion of a algnificant section of the computer industry.

What has "done the trick", as so often when our industry takes a major jump ahead, is a massive cost cutting of components paralleled by significont developments in minlaturisation. In the context of distributed processing the production of maxi-powered nilcrocomputera so cheaply that they can be atuffed into terminals without greatly altering the price of these ubiquitous bits of hardware has trenaformed the lattar into "intelligent devices".

Distributed processing, which is largely concerned with the use of widely scattered intelligent inquiry or analysis features at the remote end and security is at risk if activities at the remote terminals, can thus provide remote locations with a share of computer power proportional to Obviously, centralised DP

structures painstakingly cons-Iructed over several years,

risk if activities at the remote location depend on central computer facilities, and assoclated telephone lines, being in service every minute of the day.

illustrate the potential benefits

of a distributed data entry and

takes orders from cuatomers and

satisfies those orders from stock,

in a manual system, whether by

telephone or by letter, will be

transcribed on to standard forms

on which will be recorded all

details - like the customer's

name, order number, quantity

will be submitted by the

customer. Other information -

such as tha delivary and invoice

address, paymant terms, pro-

will be obtained from local

references held, presumably, in

some kind of filing system.

Typically the product move-

ment to which I have refarred

duct description and discount -

and type of product ordered .

relevant datalla. Some of these

held in tha branch. Orders taken

Presume the branch office

processing approach.

operating successfully and demonstrating real cost cutting abilities are in little danger of an Inminent revamp. But there are organisations which are certainly suitable casea for distributed processing treatment: where costs and turnround are too high, and responsivenesa, local flexibility and security too

High costs frequently occur when dumb terminals are online all day, on several lines, to a mainframa. Long turnrounds are often associated with the phyalcal transport of documents from remote to cantralised locations, for processing, and back again.

Poor responsivaneas sometimes reaults from the naed to access main files at the cantral location in batch mode. Flexibility is impaired by having no: will only be triggered when all

Let's look at a typical sales order entry application to

quite happily without any intervention or participation of the company's computer system, which comes into the act when one part of the order set goes to the central location for punching and preparation as management Information. However, the transaction has taken place without a great deal of checking as to the accuracy of the information and it has taken place with a good daal of research and manual looking-up of facts and figures.

this information has been as-

sembled and written down on a

Now all this can take pince

multipart order set.

A diatributed proceasing system on the other hand, can, at the order-taking point, remove a great deal of clerical activity and risk of inaccuracy. Furthermore, can provide stock level information, so that an order-taking clerk previously involved in writing a multipart set and consulting a number of reference documents, can go to a distributed processing terminal, key in a cuatomer number and have displayed automatically, delivery and invoice addresses, payment terms and credit ratings. Equally when she enters a line item, she keys in the product code, and the price and description appear on the screen, together with the stock position, and the sales ledger

and stock files are updated.

The benefit of all this is, of course, not just sheer productivity. The customer details are known to be absolutely right, his discount and credit ratings are consulted and applied, the product is correctly Identified and priced, and the stock avalinbility la apparent. A picking list can be generoted locally for use in the warehouse and the delivery note and nvoice can be printed at the

place of work. Other significant improvements are that the transaction is recorded snd, usually, transmitted to the central computer site at the end of the day. Also, at the end of tha day, a branch activity summary can be printed for local management,

The sama system can be used at the time the movement actually takes place when, for axample, a consignment laaves

For anyone considering which part of an existing manual system is to receive computer assistance, consideration should orimarily be given to replacing the area responsible for most errors, since one of the principal advantages of an intelligent terminal system is weeding out screen should contain the maximistakes before they are trans- inum possible amount of infor-

Another important consideration is the number of transcription stageain an existing manual system. Every transcription proceas takes time and effort, therafore costs money and introduces the possibility of use of that spead, such as fast further arrors. So, a one-shot capture of data leading to the provision of operational documents will be benaficial.

There is alternated as fast skipping, bi-directionol printing and so on? Will the printer be easily adaptable to use existing atationers? Documents

There is always a need for format control and can it even aoms inquiry procedures at be used to print in compressed branch, order offices. If the characters for certain dodistributed system holds files relevant to a particular branch, expensiva online inquiry facilities to mainframe, perhaps hundreds of miles away, are quite unnecessary. paperwork and also to save paper costs?

hundreds of mlies away, are quite unnecessary.

Since distributed data entry and processing is a new technique there are faw atandards and even fewer general principles of ayatém design, further compilcating that processing the self-straight on another is the local mass straight author of hearty all large enough to hold the data that will occumulate during the

clicck-list questions which can help avoid some of the pitfalls. Firstly, what data needs to be transmitted between the remote intelligent terminals and the host mainframe computer? Distributed processing economics is based on the idea that the remote terminal can process and store locally much of the dato that, in the past, had to be sent to the mainframe for processing

and storage. The more data that

can be stripped off and handled

locally, the riper a porticular

However, there are o few basic

remote location is for distributed data entry and processing. Secondly, what is likely to be the total message transmission time and the volume of data for transmission? Batch mode transmissions are far more cost effective in terms of cost per character transmitted and also allow much easiar scheduling of the mainfrome communication

batch mode and over modems facilities to support them. and Post Office lines, in select-Thirdly, who will control the ing the speed of communicadistributed system? Is It to be the tions equipment one needs to central DP manager or the boss ensure a bslance between the at the remote location? A peripherol speed capability a combination of diplomacy and the distributed end and the rational discussion suggests that overall time elapsed at the the DPM must remain in overall central end to communicate control. However, there must be with all distributed locations A some degree of local control, a useful alternative to commusimply to take advantage of nications direct to mainline local terminal programming the distributed processing sys capability. Perhaps field persontem can communicate with a nel should be allowed to write similar system installed along their own local application side the mainframe or with programs under cloae superviperhaps, n key-to-disc system sion from the DPM to assure standards, effective control and preparation and which can have system integrity, i believe that synchronous communications most branch managers will be too picnsed to go nlong with whot the central DPM is distributed systems so compact providing for the branches' that 10 Mcgabytes of disc, 64

So a distributed processing system should be regarded as an extension to the group's overnil focilities. For occeptance and effectiveness the system must match the profile of branch operations and be easily identified by remote locatinn staff us a

heipful tool in their dny-to-day work.

Tha main interfaca between

the aystem and operational staff

is most likely to be a VDU

terminal. What appears on the screen is of crucial importance

to the success of the system and

It is not always the case that tha

The system will usually incor-

the printers of an appropriate

speed and, furthermore, do the

printers have sufficient ad-

tation times."

dence on the equipment manufacturer for such applications can lead to extended implemen-Firstly, there is the need for simple for matting of layouts and field descriptions, most easily accomplished by means of a se

distributed compuling

application to show the

benefits of this method

end also to highlight

day and also large enough to hold the various reference also

that will be needed? A combina

tion of customer and product

files can easily run into a million

Data exchange batween the

distributed system and the

central mainframe will normally

be by communications rups in

It is now possible to provide

bytes of memory and a power

processor are all in the space

occupied by a standard lwa-

Software requirements of the system clearly demand some

element of programmability and there are probably three sub-

drawer filing cabinet.

"The best organisation to implement user appli-

cations is the user company itself. Totsi depen-

characters of storage.

conaiderations.

of parameters inserted into "fill-in-tha-boxes" layout sheet Secondly, there is a need for programmability of checks to take pince in real time during terminal operations. Finally, there is the need for

ogrammabilliy " basis, so that the distribute porata a printer, or printars. Are

programmability on a batch basis, so that the distributed system can run analysis and summary programs for use by branch managinent concurred by with tarminsl operations. The best organisation is implement user applications is the user company itself. Total dependence on the editional manufacturer for such applications can lead to extend implementation times. There is also the danger of infestibility is both initial specification and ability to respond to the organisation's later requirements in most distributed system case in most dist vanced featuras to make beat cuments, both to match existing Moreover, It may sometimes



Spanish electricity chiefe came to this country to see a computer system in action elmiler to one they hope to buy...at High Speed Ges. Bignors José Vile (third left), and Remon Re Birt) and Remon Seraners (second laft), from one of Sarcelona's three electricity companies, spant two

'No access to NHS records', MPs told

on National Heeith Service computers. In the Commons leat week the Heelth Minister Roland Moyle aald the decision on accees was e matter in which the doctor concerned otherwise be lust to another would axarcise his professionel judgment end not one in which it would be appropriate for minimaker."

tha govarnment to intervene. Movie (Lab. Lewisham E) was answering a question from Conservative MP Andrew Bowden (Brighton, Kemptown), a sup porter of the freedom of information campaign which is caling on the government to make all information generally avail-

Moyle's naswer endorsed the view expressed in the government White Paper on computers and privacy which said that a octor may not niways consider if to be in the patient's best interest to see the information.

Bowden said he wanted the Department of Health and Social Security to discuss with the British Medicai Association the need for guidelines for doctors on the confidentiality of medical

He sald computers hod a valuable role to play in the health service but he was not satisfied with the safeguards on access to information. Moyle added that the levels of

security were decidad locally but he assured Bowden that safeguards were rigorously used. One area where computeri-

PARLIAMENTARY

Baker (Marylebone).

He sald computerisation of this system would save the country money in cierical staff and would help the Chancellor of the Exchequer and the public by speeding up the introduction tax rate changes.

Baker said he was not satisfied with a written Commons reply from the Treasury Financial Secretary, Robert Sheldon (Lab. Asliton under Lyne) who told him that a small pllot scheme in six tsx offices in the Midlands and the North West was being used to test the feasibility of in troducing a national system by the mid-1980s. The pllot system comprises 70 Raytheon Cossor display terminals linked to a Honeywell series 700 minicom-puter (CW, November 4, 1976).

"Thare's a strong need to computerise the system as soon as possible," Baker said. "Bob Sheldon would say that every bug must be ironed out first, but sation should be stepped up as a i say it's better to have a systam top priority is that of pay-as- that works for 95% of cases. If you-earn income tax, according to Conservative MP Kenneth never get a system."

IBM terminals at Co-op

Lloyds Bank, the IBM 3600 series d banking terminal equipment has now also found favour at the Co-operativa Bank, where a pilot installation of items from the line is to be established at one of its 62 branches, probably in

The equipment to be acquired is worth £400,000, but the bank is

FOLLOWING its acceptance at taking. The 3600 series consists of a range of back-office terminala, concentrators and other communications devices and automatic tellar tarminals.

All 62 branches of the bank are now online to the twin 370/135 Installation in Manchester via IBM 3940 back-office terminals and Datapoint 1100 terminals running in IBM emu-

Disk-o-tek first UK user

disc-apace managamant aid, known as Disk-o-tek, for IBM 380/370 DOS Installationa. Disk-o-tek allocates space

sconomically for each file as it is or £80 per month. opened, saya Bata It alao removes the necessity for aepa-rata disc areas for programs in different partitiona. Apart from

saving disc space, this simplifies the lob control language.

The product also includes a suite of utilities enabling files to be deleted, revived or located, and generaling reports from the and generaling reports from the VTOC disc directory.
Disk-o-tek was daveloped by National Computing Industrias, of Georgia. The first UK user is

LATEST package in the range marketed by Busineas and Technical Systems (Bata) is a discourse bad magnitude of the system of the reduced disc space had maant avolding the purchase of two extra 3348 disc cartridges. Disk-o-tek is priced at £1,700.

Wellorax moves to Kingston

A MOVE to Kingston-upon-Thamas has been announded by Willorax, the computer bureau, from its Weatfield House, Hampton Court, address, The company is now at 12 Canbury Passage, Richmond Rossi, Kingston-upon Thamas, Surrey, Eurologic Softwars, part of the welforax Group, has moved to the same address.

How Varian will be integrated into Univac's mini operations

Varian Dala Machines, now traditional minimaker in the Univac Mini Computer Operations, intu the company's Packard, DEC or Data General

The division, known as MCO. will continue to be a separate element within Univac, with its wn Identifiable management hain, so that Univac can asseas s performance and satisfy itself hat the objectives served by its ourchase are being met. "However the V77 product

line has just been released to Univoc mainframe salesmen Ronnie Colvin, MCO marketing, lanning and support director or international Division told omputer Weekly. "We believe in sccount con-

tinuity, with one salesman res-ponsible for tha whole of the customer's system, and one of to ward off attacks on the Univac base from the ininimakers. "in general wc are talking

about ndd-on sales to ii00 and 90 series users, but there are cases where we can hold on to a 9000 series user who might

same mould as Hewlett- "because that would defeat the object of the acquisition, that of keeping Univac fully competitive within the whole

reasons, according to Colvin. "The first was of course to protect the Univac base, the second was to attack other people's bases which appear to us t**o** be vulnerable, and the third was that the company was intrigued at the success and stability of the three leading minimakers."

market spectrum," sald Colvin.

minicomputer sales forces in seven countries - the UK, Franca, Germany, italy, Belgium, Holland and Australia; the Scandinavian plans are uncertain because of our reintionship with Saab-Scunia there whose Dntasanb company also builds

The market oreas being aitacked by MCO have chnngod little frnm those sought by systems builder, experienced DP

There was no question of users who are perhaps entering MCO losing its identity as a likely third five-year DP plan. and a range of specialised appli entions markets.

These include banking, in particular communications spp network being implemented for Clydesdale Bank in Scotland. A major contract has also been Univsc bought MCO for three fulfilled at the First National Bank of Chicago, where a Swift implementation and other banking applications are running on V-series minis.

Manufacturing, including fac-tory data collection and prucess control, is another area of inter est, and Varian's acquisition of the German Krantz Computer shortly before Univac bought Varian, has given the company an entree into the printing and lishing automation markat.

The Krantz Mulby line of minis has now been abandoned and the Krantz plant at Aachen ond the Varian plant at Walton on-Thomes become in effect in ternal systems houses for MCO with small ninounts of systems

assembly being done nt ench.
"Ench will operate autonnmously as a systems house," said

Harris Series 100 speaks your kind of language

Fortran IV · Cobol 74 · Basic · Harris Macro Assembler · RPG11 Forgo (Diagnostic) · Snobol 4

In fect, the Herris Series 100 range of five generalpurpose, virtuel memory computer systems can hendle ell these lenguages simultaneously. Thet makes them ideally suited for use in commercial, scientific end educational roles.

Eech of these modular, complete systems is en expended end more powerful version of the S110, the besic model in the series which feetures:

☐ 96K Bytee of Memory and e Scientific Arithmetic Unit ☐ System console CRT with keyboard and controller

☐ 10.BM Byte Certridge Diec and 9 treck, B00 BPI, 45 IPS Megnetic Tepe Unit, with essocieted

□ DMACommunications Multiplaxer ☐ Seven lenguege processors, five support libreriee—

including Total, the renowned Date Bese Management System and four RJE and two RBT packeges A cerd reeder and line printer ere stenderd with ell,

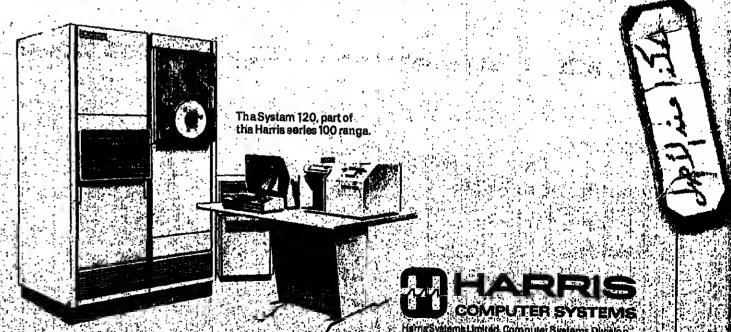
except the besic system, the S110. To ensure meximum efficiency In every system, the Harris Virtuel Memory Menager (VULCAN)

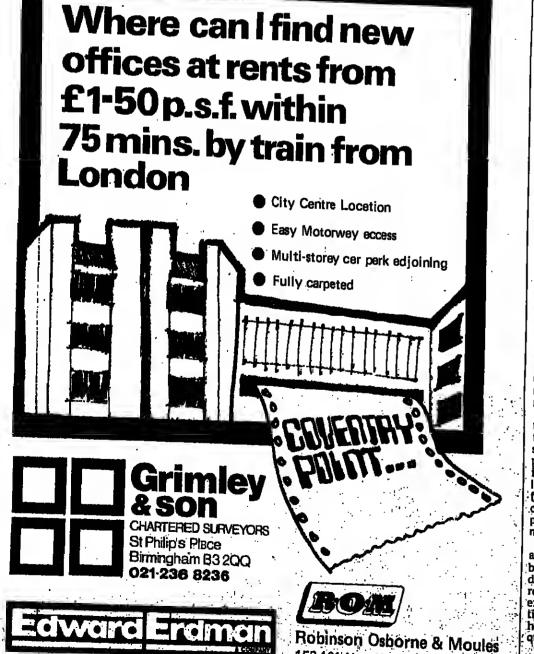
comes es pert of the overall package. VULCAN ie e comprehensive demend - peging virtuel memory operating system with e simple

user-oriented job control lenguage. With VULCAN each system cen operete, concurrently, in interective time-ehering, multi-level betch processing end reel-time processing modes. And with VULCAN, ell seven processing lengueges

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THERE are probably as many conceptions of the automated office as there are people talking well ahead to a futuristic science fiction horizon, with robots doing all the manuel work, volce-operated and responding computers and the like. although it would not be wise to

No doubt oil this will one day be possible, even practicable and eventually come to pass, but it is difficult to put a definite date on the event.

Without looking too far ahead there are sufficient developments in hand or anticipated for the not too distant future to form a reasonably accurate mental picture about the office of the 1980s, and possibly that of

Office work is essentially to do with communicating with other people and with the processing of information, to enabla meaningful communication and decision-making to take pince; thus advances in information and manipulation and in communications technology will have a profound impact on the office of the future.

Four current developments. oil pursued with great vigour. and attracting considerable attention and even enthusiasm from potential users will in their maturity, hopefully in the next few years, provide e solid foundation for the eutomated

Three of them are to do with new or more efficient and effective artefacts. The fourth, Viewdate, which occupies a fundamental and possibly crucial place because of ita inportance, ia a system rather than

its importance la in the diffi-

"Office work is essentially to do with com- class rather than Just the municating with other specific system currently being marketed by the Post Office. people and with the which has the major attributea processing of infor- of what is needed in the mation . . .

cult but tremendously exciting areo of the interface - or perhaps a better word la relationship - between the man (the user) and his artefacts.

it is in fact a relationship between the user and the man who designs the system and its software for the benefit of the user, anticipating (Intelligently and correctly, it is to be hoped), his needs, his thinking and his res-

First of the artefacts is the television display. This is currently and may perhaps remain for many years to come the simplest, cheapest and most versatile means available for a machine to communicate with a

There is a possibility that a different kind of display technique, that is, not using cathode ray tubes, might in the next decade be developed to the point where it might be considered an effective competitor. But the probability is not very great.

Television displays using cathode ray tubes have auch a formidable combination of favourable attributes that the likelihood of finding an equally good replacement is rather low. They provide easy readability in all lighting conditions including ambient illumination for viewers of all ages, alphanumeric, graphic, pictorial and colour display capabilities, a very high level of reliability, a mature technology, substantial

potential for further development and low cost. The second artefact is the microprocessor. This device is clearly only at the threshold of its development. It brings to the user an enormous amount of information processing power, in a convenient and readily available form at such a low cos that its widespread use, even for trivial, but time-consuming and otherwise labour-intensive

operations, may be accepted with equonImity (indeed even welcomed).
The third artefact is the optical fibre which, used in a communication role alone, can protransmission of large volumes of information at high apeed and at reasonable cost between distant locations, from where the infor-

mation is available to where it is The fourth Item in the development of the automated office la Viewdata. This term is used here to convey the generic

automated office.

Viewdata is the instrument that pulls together these artefacts to make the complete and many-sided automated office, in the same way that the office nianager co-ordinates all the activities of the office so that sach function may be performed in unison with all the others, It is also the versatile and ubiquitous office factorum who, tolling in the background, ensures that everything runs smoothly and on time, that information needed is available in the right form at the right place and at the right time, who is there to advise

when needed, prompt discreetly when action is required. There are many activities running concurrently in the office. Mail has to be handled, " When prepared it needs to be

recorded, then deapatched. Confirmation needs to be available in some casea that it has been duly racelved. Mail received must be recorded, then distributed. Its whereabouts must be noted so that it may be retrieved at short notice, when

needed. Office routines must be monitored — diarles maintained, notices of meetinga must be despatched in time together with appropriate documents. The preparation, despatch and collection of the appropriate documents must be carried out meticulously.

Information needed must be located, retrieved and distributed. Budgets, accounts of

A popular view of the off- Post Office computer ica of the future is that it research applications divwill recemble something ision, looks at each of out of Doctor Who these artefacte and seas Robots will do most of the the Viewdata concept as manual jobs with volce- the instrument for pulling oparated microe, atc aaais- the four together to make

In the medium term, sey the 1980a and 1990s, four current davelopmenta will provide solid foundations to hendle business and or the automated office. Sam Fadida, haad of the Information.

expenditure, production, revenue, cash flow must be collected together, presented in sultable form, perhaps in many different ways, and presented

information relating to or generated within or outside the office must be identified, located and made available. Perhaps carned out on this Information before it can be properly dig-

Communications channels possibly based on optical fibres. must be established promptly and efficiently with others in the office or elsewhere.

Viewdata, might be this. Clearly all or most of theae Mall handling. Mail is prepared off-line, using microprocessorjobs may be carried out by one or more computers suitably procontrolled terminals with TV grammed. With each program or acreen display, and local editing computer a apecialist and storage facilities on cassette (sometimes a programmer) must be available to drive it. recordera or floppy discs. After houra Viewdata calls the office Thus the more we automate, the terminala automatically, reads off the mail and despatches it to more we become dependent on human assistance.

ita dastination, to the outaide The key to this problem is to recognise that in this and other world or even within the organ-Isation. Since mail is transmitted situations we nead to take an aftar houra on Viewdața, tranaoverall systems approach, and mission coats are kept to a regard the manager and his assistants in the office as laymen as far as using the computer in ita multiplicity of forms and protocols is considered.

ted as soon as it is ready using Viewdata message facilities, at a alightly increased cost.

Viewdata can han die messages to multiple addressea While perfectly competent to define his information raquirements, and to use this informatauch as circulara, mail shots and lon when it is made available. so on, thus taking the total mall burden off the clerical staff the manager cannot be burdened with Innumerable com-puter protocols, each with its Viewdata can also coonect up to the Telex network, providing be retrieved and examined at

irrelevant and unneceasarily This is where Viewdata has

created a place for itself in the areas of information retrieval and dissemination, and of communications and Information processing. Viewdata recognises that the enormous variety of tasks which humans are required to perform must of necessity be handled by a versatile language which comes as close as possible to the versatility and generality of n naturni language, but without its lack of precision and ambiguity.

much has been written about

Further developments of

Viewdata in the coming deende

enhancement of the system to

enable It to handle business and

domestic mail electronically, and to acquire the capability of

Urgent mall may be transmit-

Its important facets.

when needed. Thus Viewdata can look after The principles of Viewdnta in the total process of collecting. the current Post Office system transmitting, distributing, are now well established, and receiving, storing and filing all mail. The local Viewdata centre provides low-cost innss storage for rarely accessed documental. ion and fast online rundom access storage, possibly on

quasi-infinite minutiae of often access to a worldwide audience

using a telecommunications

system already well developed.

At the receiving end, incom-

ing mail may be deposited in the

terminal

automatically, or held in the lo-

cni Viewdata computer to await

retrieval. Where necessary hard

copy of all or selected pleces of

mail may be obtained at will,

although generally it will be

more economical to file all cor-

respondence in the organi-

isation's own computer or in the

local Viewdath computer centre

bubble memory or charge

coupled device memory, for

frequently needed documents. Note that with this arrangethe complete and manyment files and documents are eldad eutomatad office. accessible not only from the of-He also predicts that fice, but also from any location Vlewdata will be enhanced which has an entry point to the telecommunications network, domestic moil and pictorial be it wide-hand optical fibre or the current speech-hand

Mail preparation and processing will in many cases justify a dedicated office terminal providing off-line editing and other will be mainly centred on the clerical facilities, in small offices, however, where the volume is low, online moil preparation and editing may well be more economic; the local Viewdata handling pictorial information. centre providing the necessary The latter is mainly dependent computer bock-up. The trade-off on the eatabilshment of wideis between communications band data networks at the local. costs end local processing costs. national and international levels Gathering management Infor-A likely scenario for the mation, All management inforautomated office, based on mation, for example money transfers, sales, production levels, inventories and holiday rotas, could be made available

inatantly on a worldwide basis, using Viewdata and Ita international counterparts.

Data gathering of Intermittent nature is probably best carried out using local intelligent terminals with some atorage capabilities. As in the case of mail, the day's records are collected automatically with Viewdata and collated, analysed and stored in the appropriate file randy to be retrieved when

Further processing on this data, for instance calculating moving averagoa, total equivalent cash value and comparison with earlier periods, may be able to carry on View-data and displayed graphic-

any desired location, thus making it possible for the executive to have access to his manage-

ment data wherever he is. The simple Viewdala access rules and information retrieval and processing methods enable the mannger to interrogate personally the files he needs and to Instruct Viewdata to carry our uny operation he requires.

Access to worldwide databanks. Airendy in Europe there are more than 340 bibliographic lie or databases which contain

from where it may be retrieved "Viewdata is the lifstrument that makes the complete and many-sided automated office ..."

> references to documents from which the user may extract the information relevant to his needs, and 150 databanks which contain the direct Information required.

> Some datuhanks are supparted by sultes of computer programs which enable the use to carry out calculations on the data stored in the databanks.

Specialists in the use of data bases and databanks are able to access these direct through various networks which have heen or are being established specifically for this purpost. such as Arpanet and Euronel

For the high level executive who may need to access these dutuhanks relatively in frequently, the business of atquiring fluency in all their varied and complex protocols dannting and in practice will nigh impossible. Vierdan nigh impossible one search comes to the rescue one search by providing a kind of translation service is infrequent user of a databank obtain the Information he need without difficulty. Thus a local call to the Viewdata centre provide the executive will access to databanks worlden and when he requires it.

A brief look at the tiller of some of the established the banks in Europe will provide a feel for the tremendous stope of this facility. The databases and the facility of the tremendous stope of the facility. this facility. The database and this facility. The database so this database cover bibliographic references on agricultur, in cluding tropical agricultur. Cluding tropical agricultur. Ag

formation is available from the continue from th In this case also, all data may

Where companies can enjoy 10 tax-free years

DID you know that a dottle of whisky costs 1971 in Iraq and only £2.04 in Qatar? Or that the annual salary of a trained factory worker in Sudan is £594? Or that companies con operate for 10 years without paying tax in Kuwali?

These facts are culled from two books* which should make extremely useful read-ing for companies considering exporting to

Japanese aim

at US office

market

HREE Japanese manufac-

THREE Japanese manuraciurara are now preparing to
anter the US office computer
market. Nippon Electric has a
Messachusetts subaldiery sat to
launch the 18-bit micro-besed
NEAC-100 system, Missublahi
is simost ready to announce us
Melcom line, and Toshiba is
any interest of introduce its.

now planning to introduce its Tosbectine. Misubisht marketed Malcom

pusiness systems in the UK for a

hart time, but pulled out be

first UK order to be reported and

the system is one to be installed

next August at the company's

headquarters at Slough, Midd-

ICL is coy about other orders

in the UK but there are now

seven overseas sales. In Ausi-

ralia the Swan Brewery, Perth, is

been placed in South Africa.

installed alongside an existing

1902T. Bob Hancke, the DP ma-

nager, told Computer Weekly,

We have order processing.

ales ledger and file inquiry run-

ing online on the 1902T and

hese will continue."

seuse of poor response.

DID you know that a bottle of whisky costs the Middle East, Africa and Asia.

The first, Middle East Costs, lists prices of accommodation, transport, utilities, food, drinks, tobacco, clothes, consumer goods, education, medical care, entertainment, business accommodation, office services. salaries and social security for 10 Middle East countries.

The other book covers taxation in the

In Germany, 1977 is the year of the hospital automatic system for DEC. The company exhibited its KiGST-SYS medical system of the Systems 77 exhibition in Munich in October, and gave a repest performance at the Medica 77 show in Düsseldorf's fortnight ago. KiGST-SYS was developed for Germany's Council for Data Processing, and includes a PDP-11 mini supporting up to 84 terminals. The picture shows a terminal in the clinical chamistry laboratory at the Carlies hospital in 8ad Mergenthalm.

New programs from Middle East, Ghana, Kenya, Nigeria, India, Singapore and Japan. Topics range from **National fill**

personal and company taxes to incentives. capital gains, depreciation and Excise duties. Middle East Costs, 52 pp. £t0. Taxation in the Middle East, Africa and Asia. 138 pp. £t2.50.
 Confederation of British Industry. CBI Print and Publications Department, 21 Totalit Street, London SMILL 04 p.

the usability gap

MICROCOMPUTER technology s forcing a much closer interface between the user and the manufacturer, according to Bill Baker, microprocessor group director for National Semiconductor, and the minnifacturers must lead the way. National, therefore, has introduced two that contain the systems suppnew, user oriented programs ort software required by the

aimed at plugging the gap.

Speaking in London at the weekend, nt the end of a European tour, Baker said that the National programs complemented efforts nuw being made in the US to produce a set of standards for microprocessors, efforts being spearreaded by the IEEE.

The first program that Bnker's engineering tenm has produced hns been called Microbus. This hns established a set of ilefinitions for the interface between a CPU chip and its supporting peripheral devices, in terms of such parameters as signal levels, timings and pindefinitions. This, according to Baker, will remove a lot of uncertainty among users concerning which devices can be used

The aecond program, Silicon Software, is aimed at removing many user problems in software implementation Based on National's Maxirom technology, which allows the construction of single chlp, 64K ROMs, memories are to be made available

The first two devices are the 8295, containing the 4K National Industrial Basic Language (Nibl) interpreter, line assembler, punch routine und editor. intended for use with National's SC/MP processors, and the 8298 containing an 8K Busic interpreter with hexadocimal debugger front end, for use with the 1080 processor family.

Already avnilhble in sample quantitles, at a price of under \$100, these Microbuscompatible parts will be foll-uwed by further introductions

Baker indicated that other high level languages, such as Fortran and Cobol, were prob-

Berlei leads the way in UK SPECIAL LOW PRICE with a 2950 To establish a teleprocessing Tydfil factory, all online to the network that will link its seven factories, Berlei, the bra and "We want to out terminals which can talk to the 2950 in all swimwenr manufacturer, has ordered an ICL 2050. This the

our seven factories," says Haacke, "We are investigating whether to have any local in telligence at the inctories or do the processing here at Slough. We will only use DME/3 on the 2950 as standby for the pro-grams un the 1902T. On the 2950 we want a total teleprocessing environment, operating on

to have a system and another IDMS files." order has been placed in New The 1902T, which is expected to be in operation for another In Europe, two 2950s are to replace 1901Ts in West Geryear lease, but Berlei plans to many, and a Danish publishing huy it and lease the 2950. It is house in Copenhagen plans to teplace its 2904 with a 2950 in estimated that the cost will be about the same in monthly 1979. Two other orders have payments as the 1902T is costing The Berlei machine will be

"The 2950 is good value for money, much better than the 1900," commenta Haacke.

The system will have 768bytes of main memory, four EDS 200 disc drivea, four tape drives, Al present there are two 7502 train printer. Programming will VDU cluster systems supporting is terminals at Slough and a development ataff at all levels to

7181 display unit at the Merthyr work on the project. Report predicts boom in display terminals market

AL sales of interactive of all will be in sales of point display terminals in Western sale terminals. Europe will jump from £95 million in 1978 to £330 million by 1986, to provide vendors with a grand total of £2,121 million worth of business over the tenmain predictions made in a study of the West European terminal market, from the US consultancy, Frost and Sullivan.

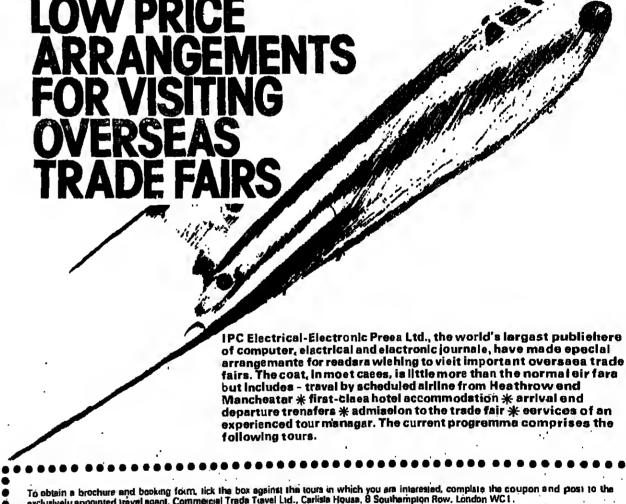
In contrast to the boom in isplny terminal business, saies of interactive keyboard/printer terminals are predicted to fall after 1980, from a peak of £79 million to £48 million by 1986; Sales of general purpose batch terminals will go more or less the same way. The study sees them declining from £104 million in 1980 to £63 million in 1986.

Special purpose financial terminuls are seen as having a much more healthy future, with should sales increasing from £52 million in 1976 to 272 million in 1986, but the most rapid growth

Frost and Sullivan predicts that the non-food retall atore sector of the PoS market will provide £80 million worth of businesa for vendors by 1986, year period. This is one of the compared with £18 million in 1976, while the value of PoS terminals sold to the aupermarket sectors will leap from a mere £i million in 1978 to £79 million by

Another area of rapid growth will be the graphic display ter-minals, where annual sales will Increase from £8 million to £25 million over the 10-year period. Shipments of other special purlike industrial data collection credit nuthorisation and ticket Issuing will rise from £12 million to £49 million.

Computer Termisis in Europe, 584pp. \$750, Prost and Sullivan Ltd. 104/112-Marylebona Lame. WIM 5FU Tel: 01-486 8377/9



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A recent report "Inforyeere, writes BECKY BARNA.

An even greeter decline in US superiority predicted is in the mini end dedicated spplicetion computer systems merkets.

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A recent report "Information Processing in the United States: A Quentitative Summery", published by the American Proceesing Societies, of Montvale, New Jersey, predicts the decline of US dominence of the worldwide in stalled bese of general purpose computer systems over the next five years, writes BECKY Processing Information Processing Societies, of Montvale, New Jersey, predicts the decline of US dominence of the worldwide in stalled bese of general purpose computer systems over the next five years, writes BECKY a US dominance

	ONP (S Billians)	inataliad 6sse Valus (5 Billians)	Installed Base as % of ONP	Population (MiDians of Peopla)	Jaetolisd 6 ace Number (Syciema)	Number of Systemu per Million Papuletten
United States Japan West Germany United Kingdom France USSR USSR USSR and 6 Eastern	1,419.2 ¹ 450.0 387.6 173.1 282.7 71,0.0	33,6 5.4 4.4 3.5 3.5 4.5	2.3 1.2 1.2 2.0 1.2 0.5	21 t.6 109.7 62.0 56.2 52.5 252. t	166,800 30,095 20, 88 0 16,620 13,064 12,590	767 274 337 276 246 50
European Countries 18NP from Statistical Abstract	655.2	5.6	0.6	356.6	15,485	43

Figure 2: Damestic installad base in relation to grose national product (GNP) and population; selected countries, 1674.

can expect a diminution in its dominance of the worldwide installed base of general purpose computer systems, and an even greater decline in its superiority n the mini and dedicated application computer systems markets. Contributing to this gradual erosion of the US stranglehold will be the aggressive Japanese computer

nanufacturers. These predictions are the latest in a series developed by Frederic G. WithIngton, head of data processing industry forecasting at Arthur D. Little, Inc., a leading market research

data

Mussachusetta. Withington's says Withington, "will page a observations were added to that of other noted US computer The soothsayer is quick to all that the US will "continue to experts to produce n report published recently by the American Federatinn of Information Processing Societies, of Montvale, New

the more recent prognosti-

cations will bear out. In addition to ADL, two other

market research firms

contributed to the study:

International Data Corp. of

Newton, Massachusetts and

Auerbach Associates, Inc. of

Philadeiphia, Pennsylvaniu.

Dath was also supplied by the US Deportment of Commerce's

Domestic and International

Business Administration,

Commerce's Nutlonal Bureau of

Department of Labor's Bureau

According to Withington.

general purpose computers of

US innuifocture accounted for

87% by value of the world's

installed buse in 1976 (see Figure

1). US dominonce in this market

is expected to decline, however,

to 81% by 1981. He predicted that

more aharply, from 75% in 1976 to 67% in 1981. Because installed

pase is a cumulative figure,

heavily weighted by post sules,

the reduction in American

atrength is expected to cause

their total revenues from

computing equipment exceed

imports by a intlo of 15 to 1, and

this year will result in a net trnde

surplus of \$2.8 thousand millinn.

he US as o means of offsetting

Japan poses o strong

competitive threat to the US

companies offer complete ilnes

research and development.

costly energy imports.

concern to US vendors.

of Labor Statistics.

Commerce Department compared the US with selected "Information Processing in countries by calculating the portion of the gross national the United States: A Quantitative Summory" is in product rspresented by the essence an update of an earlier nstalled computer base The AFIPS study containing data for federal department's day 1971 and forecasts for 1976. indicates the US had an Installed Because the predictions in the base of 168,800 systems, previous study proved representing 2.3% of the US 'reasonably accurate". GNP, in 1974 (see Figure 2). according to AFIPS, the organisation is optimistic that

Corresponding figures showed Japan had 30,095 systems. quivulent to 1.2% of its GNP. the UK had 15,520 computers or 2% of its GNP, and West Germany had 20,860 machines.

dominate the world computer

Using 1974 as a base year, the

market" for many moons.

or 1.2% of its GNP. Most of the AFIPS report concerned with three topics: US suppliers of computing equipment and services US institutional users of computers and services and personal constituting the US computer

Standurds, and the US AFIPS points out that the amount spent by US users per capita doubled in the period from 1970 through 1975, az expenditure trend that h expected to continue during the five-year spans through 1985 Similarly, revenues of computer manufucturers and services vendors doubled in the five-year period ending in 1976 and are expected to double again by

the US ahore of the overseas installed base will drop off even The value of shipments of minicomputers and dedicated application systems will outpace overall shipments. According to AFIPS duta, this market Increased by a factor of four from 1971 through 1976, and should do so again by 1981. While the cost/performance

Market dominance is particularly important to US mainframe manufacturers, ratio of hardware has improved which reportedly net 50% of by a factor of 100 each decade since 1955, and should conline overseas sides. US exports of to do so for al least the next decade. the problems of software improvement have not been solved. Programmer productivity appears to be improving at only 3% per year.

omputer technology is vitol to The problem may be resolved the report contends, Il new technology in the software are can lessan. The need for programmer training and industry, reasons WithIngton, substitute training of users in the control of intelligent primarily because of that oriented economy". Japanese terminais. The software problem, according to the AFIPS problem, according to their report, "is the critical path in dealing with data processing is the next decade." of general purpose systems and devote substantial suma to

Location of Installed Base	% of Installed Base Value Provided by U.S. firms				
manufu para	1978 Estimate	1981 Fototal			
United Sfales Canads Western Europe Eastern Europe Jepan Othere	100 95 96 5 44				
Oversens	75				
World	87				

countries. Overses World: 1975, 1981 (excluding min) in

Books and Brochures

to manage without other

Every chapter of the book

concludes with a selection

of exercises and problems

used for teaching purposes. In Chaper 3 ("Searching

searching for things all the

tidined within this book.

They are scanty, incom-

plete and contain several

errors. For example, in the

support material.

Organising databases

Sakti P. Ghosh. 376pp

THE author's motivation for producing this book organisation which are usble at the graduate level. While this claim may have been true when he com- based upon the material menced writing this book it covered in that chapter. is certainly not valid now. Some of these are very difsince there are currently ficult. In visw of this It several good texts available. Despite this, Ghosh's book the author had provided is both Interesting and dif- answers - particularly if he ferent from the others that had intended the book to be graph' and ' . . . logically it will be found by many to be of substantial utility and on One Field") the author set is referred to as seg-

useful addition to the lib-The early part of the book examine the basic concepts the English style used. isdevoted to o discussion of underlying searching". In Although they reduce data description models; the my experience one of the readability they do not structure, representation most important aids to seriously detruct from the and analysis of queries; searching is the availability good computer science searching and sorting; key of indexes that are both accontulned between the to uddress transformation curate and as comprehen- covers. elgorithms; and filing sive as is possible for the schemes for answering subject matter that they makes an important conqueries that are based upon claim to cover. Unfortun- tribution to its field. It is the specification of many ately, this cannot be said of expensive, but it contains attributes each of which have multiple values. The latter part of the text goes on to describe the types of access paths used for the retrieval of data and then subject index there are no abstract notation. The only

proceeds to a discussion of entries for "J", even though major negative criticisms of the body of the text makes the hook that I have nre ganising records on drum many references to the based upon the weakness of In order to give the reader Similarly, the "I" section answers to the problems a hand with some of the contains no entry for IBM, that are set.

Publications.

want to live in It?

in which computing and

communications have con-

verged. But shall we be able

to cope with it? Shall we

zibar" and "The Squares of

us could be living in 35

wave Rider" explores the

social impact of a public

datanet within an anviron-

ment suggested by Toffler's

quite complex mathe- IMS or information, all of

dellherate misuse by the datanet. Thereafter he lives

Dangerous datanet The Shockwave Rider by the "tapeworm", nn auto-John Brunner, 288pp. 85p. nomous packet of Infor- Orange") and helps to ab-Orbit paperback, Futura mation that, once entered, sorb the reader into the can move around the net- world he portrays. Needless RIGHT now we are laying work defending and even to say, overload is a comthe foundations of a world reproducing itself while

Indeed, recognition of a

dividual's physical reality.

person's existence dependa

I found the book highly changing the data aiready held in the network. reodable and plausible en-For most of the future- ough to be quite worrying shocked population, the The book's main message is datanet is a source of an- clear, and we in the com-Being an experienced xiety. They know, for puter industry ahould take writer of SF (S for social - example, that an Individuit seriously and respond to remember "Stand on Zan- al's credit can be frozen for it. Criticisma? Only that the months by a malicious input blurb on the back cover is the City"?). John Brunner Is and that this is only one of better able than most to draw a convincing picture of a world in which most of indeed, recognition of a

PAUL ELLIS

A COMPREHENSIVE brochure more upon rapresentative on a range of allencers for information than on tha individual's physical reality.

The shockwave rider of the title is a young man who "Fiture Shock". Keeping a tight rein on the technology, Brunner exposes some of the cruciol questions on privacy, freedom of access to information and its deliherate misuse by the the title is a young man who had a bscondad from a government reaearch in altitution. To avoid capture he uses his computing virtuosity psriodically to rewrite his identity on the datanet. Thereafter he lives

datanet. Thereafter he lives have efflia. Through their impacts on the lives of his characters these questions assume more than acadenic interest.

In the nuthor's US of the early 21at cantury (whan many of us will be middle-aged) terminals, computsra and database networks form the framework of the social structure. Anyone with a high anough passcode and sufficient akill can "mouae around" In the datanet to his mind's contant, usually through a home terminal. A particusiant of the last right nowly. At first would now for the relational flag rounders on office machines and data processing equipment. And the last right nowly. At first would now for the right nowly. At first would now for the right nowly. At first would now for the right power elita. Through their aoch role in detail — utopia

mstical concepta, Chapter I ("Data Structurea") condefined within the text. The tains a section on author index is similarly mathematical topics. lacking in both accuracy Although this section is and content. Thus, Buchhelpful, it is not of sufficient holz is wrongly spelled, and depth to enable the reader the incorrect spelling is

consistently used through-

out the book.

There ars many other Press, New York. spelling and typographical errors, in addition to many alight grammatical errors the most popular of which is the omission of the indefinite articls in many of would have been helpful if the definitions that are given. For example, 'A part of a graph is called partial related information which is treated as a contiguous will constitute an extremely states: "Human beings are ment'. There are multiple instances of this, However, lime, but very few care to these criticisms are just of This is a good book and

the indexes that are con-much valuable information and many refreshing ideas. I would not recommend it tu those whose mathematics is weak, or who have a fear of database "join" operation. the indexes and the luck of

"Clock work

Practical time sharing stotus reporta of projects; a faw of them are highly Computer Tims Sharing, by E. C. Aylward and B. carme's paper describing a stotus reporta of projects; a faw of them are highly Software portability, an ad- CNRS/SRC work. vanced course, ed. P. J. Some of the material is Brown 342pp. £7. Cam- widely available elsewhere:

Computer Analysis of Neuronal Structurss, edited by Robert D. Lind-say. 210pp. \$27. Computers in Blology and Medicine Series, Plenum

THIS book ahows how progress is being made in providing a quantitative description of neuronal structures and how computer and in many coses they are an appendix. The GOTO is systems have been devised tn assist in the work. The depth, presumably to avoid author docs not attempt to differing appronches by the perplexing the student and authors are essentially ap- also because the material inn regarding the pitfulls plaining the principles of the computer approaches by a suitable lecture course. adopted, rather than dcscribing the computer 14 chapters and nine np- voted to layout conventions hardware and software in detail. The book underlines pendices. Chapter Two on and rules for indentation of flowcharts consists of just source code. Unfortunately, the amount of numerical two pages which present the student who follows the information required in re- the terminology and an suggestions found here or present the structure of a example. Subsequent who mimics the style used fort required both to re- structure, language com- computer programs empresent three-dimensional ponents, list-directed 1/O, bodied within the text could neuround-type structures and to gather meaningful—labels, decision statements, statistical information character string manipulatabout them from ex- ion using SUBSTR,

computer graphics is scripted variables, DO consists of a listing of all the perimental measurements. very much a growth area of groups and loops, struc- PL/C error codes and computing activity at pre- tures, disc I/O and simple messages; their inclusion is clear how such techiniques may be applied to the problems encountered in the to which answers are pro-piler. Likewise, there is an examination and represen- vided; there is also a variety tation of neuronal struct of suggestions and of the card punch which

by some very sophisticated to write. No answers for culnrly beginners, spend a malhematical analysis but

The level of presentation provides a good description f progress in this field, and there are sufficient references in each chapter for the work described to be pursued in more detail. The book clearly reveals the power of computing technology when it has been harnessed satisfactorily to the problems of handling

Analysis of PL/C basics: neuronal scratching the surface

concept of defaults, bit

rence J. Mazlack. 145pp. Areas that are not cov-Soft cover £5.20. ered by the text include the McGraw-HIII.

THIS book is intended for string variables, lobel varinewcomsrs, not only to, ables, user defined function PL/C, but to programming, procedures, begin blocks The concepts that are cov- and storage types. Editered are very elementary directed I/O is relegated to not pursued to any great used extensively and the present any words of cautcontained in the book is in- associated with its undiscitended to he supplemented plined use.

In the collection of ap-The text is organised into pendices, there is one delingle neurone and the ef- chapters deal with program in the many Illustrative expressions, GOTOs and well end up by detracting from, rather thun enhanc-LENGTH and INDEX, sub-

subroutine procedures, nunecessary since this In-Each chapter is augmented formation is provided by a series of test questions - routinely by the PL/C comures.

specifications for programs could have been omitted. As
This work is underpinned which the student is invited inost programmers, parti-

was disappointing to find that Appendix B ("Debugging") consisted of only three pages that described desk-checking and the PL/ C CHECK prefix. Nothing use of PUT DATA, FLOW etc or the use of the many aids provided by the complicr such as the dynamic flow trace, dump of octive blucks and scalar nutomutics at program ter-

mination, etc.

The book contains some uselul ideas and is quite well produced. It is free of typographical errors and contains lots of nicely re produced listings of prograin somice code designer o illustrate the various concepts presented. Unfortunately, its approach is of the "pre-structured pro gramming" era. While it would make a useful tect for those studying computing as an uncillary subject specialists would not find it of interest, since it does not go into the topics it covers sufficient depth, Indeed it is a pity that this book only scrntches the surface of PL/C, as there are many fascinating and interesting facets of the system which are left uncovered.

this does not prevent the non-mathematicism from reading the text easily. The level of presentation Mathods of algorithmic Eastern European count- a compiler production sy

language implementatines, and it would seem that stem" by Jan Borowlec. ion: No 47 In the Lecture the software techniques Notes In Computer there employed are very bit Science series, edited by as advanced as in Western A. Ershov, and C. H. A. Europe. Springer-Verlag.

The papers most to be re-\$3.70. commended may well commend themselves as being the moat readable: Lecar-THE papers included here me's (mentioned above); are all from the Symposium "On the macro extension dustry. It is to be hoped that on Methods for the Im- of programming langulementation of Algorithplementation of Algorith-mic Languages held at No-which contains a neat forvosibirsk in the USSR in malisation of what is al-September 1875. Their stan-ready known about more accessibly. deeply thaoratical, some

This is not a book to be read cover to cover, any more than one would read say, the Journal of the ACM mended to university departmenta, and compilerconstruction experta in in-

everything which Is original

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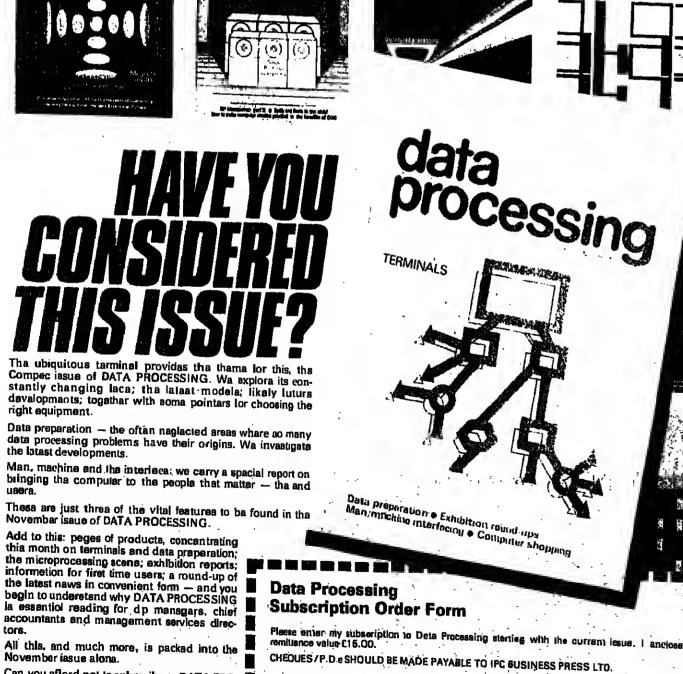
practically Instructive, some giving only back-ground Information and Portability

E. C. Aylward and B. Chakraborty. 74 pp. £1.60. The instituta of Practitionars In Work Study. Organisation and Methods, 9/10 River Front, Enfield, Middlesex ENI 3TE.

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programming in Basic on a papers have had to bear book, which is based on an exomple, time sharing service using a printer terminal hes been printer terminal hes been produced for non-computar the university of Kent early about this book are part of the university of Kent early about this book are part of Tha aubject matter last year. It would be suit the reservationa I heve

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MIDLANDS APPOINTMENTS TO SOLUTIONS

Midlands always in need of skilled staff **By Cathy Tracey**

processing professionale in the Midlande area is still running at a substantial level. The emphasis, as ever, lies in a requirement for more junior programmers and analyst/programmers with up to three years' high-level commercial language experience, for technicians with solld experlence in the more advanced areas — for

Much of central Midlanda closely, and when compared significantly lower. The industry consists of sub- specifically with local industry consists of sub-sidiarles of large con-government, freelance is improving, and manufac-In Industries associated isations which have been with, for example, the able to respond more effect he last few months, many motor industry, or light, tively, in monetary terms, to in the DP field. medium engineering. As the overall increase in salmajor and responsible em. ary scales within the com- tivity on the hardware sales ployers, these companies puter disciplines. front, though few organ-have for the most part. in addition to the vast sations maintain any size believe will continue to be have, for the most part, in addition to the vast isations maintain any size believe will constrictly followed the array of interesting projects able centralised, or head-so in the future.

The Midlands offers the unusual combination of the attractione of city living, with easy eccess to more rural aurrowndings. With the cost of living eignificantly lower than in the South of England, it has always been a bresding ground for skilled people—and the DP field is no excaption, asys CATHY TRACEY, Midlands regional manager of Specialist Computer Recruitment Ltd at Birmingham.

government's pay guide- and large scale investment which continues to be made Though offering a chall- in both systems developexample, database langu- enging and dynamic en- ment and hardware, the ages, and people who have vironment, job satisfaction Midlends offers the unusual worked on teleprocessing and from a career stand- combination of the attracmonitors, etc — and for mature analysts with good future to computer proinvestigation, design and fessionals, many have found

tions of city living, with easy access to more rural surroundings.

intelligation, design and itessionals, many have found intelligation, design and themselves considerably with an emphasis on mnufacturing-based systems.

The salary situation remains somewhat confused.

Much of central Midlands openings and those organ-isations which have been created 6,000 more jobs in There is considerable ac-

quartered operations in the Midlands. Professional sales and marketing people, as Riways, are difficult to find If they are working at e territory sales or territory sales management level, and a considerable number of opportunities are open to them at this time.

In summary, the Midlanda offers the combination of an attractive living environment, coupled with substantial opportunity in progressive computer sites against a background of realistic salary scales. in splte of emotive articles in a number of computer journals in recent weeks, for the mature and substantial employer, salary scales remain, largely, regularised and controlled, and continue to follow the pattern of other professions, rather than to have exerted on the salary market as a whole their own unique in-

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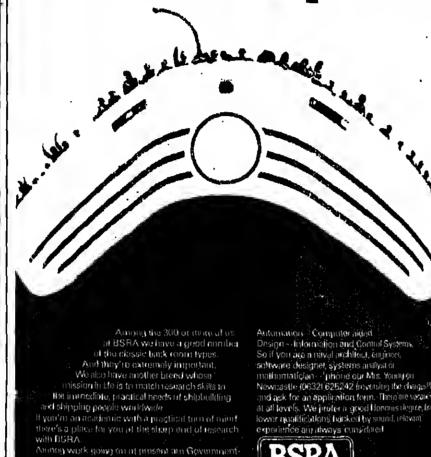
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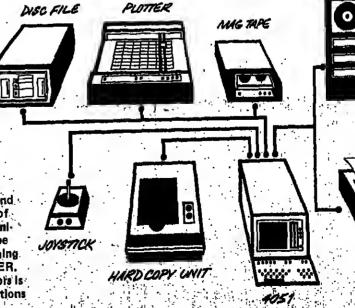
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In London the work, involving the use of both Fortran and Assembler, consists of developing and mainteining new and existing software for processing satisfic data. We have two Texas Instruments TIMAP systems which are dedicated to satemic processing and our programmers work in close fields on with the Geophysicasts using this system.

In Sunbury the programmers neelst Resporch Goophysicials in the design, develope We are seeking applicants with at toost two years' programming experience, pretably with a solamic system. A degree or equivolant in Matile, Physics, or Computer Science

benefits include aubsidised lunchos, full eporte mid social tecilities and non-contributory poneton scheme.

The Menoger, Central Recruitment, The British Potroleum Company Limited, Britannic House, Moor Lane, London EC2Y 98U.

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Our Computer Section has the following two vacancies:

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Tasks: The Scientific Programmer will be part of the Programming unit (Manager and five programmers) who write, alter and maintain programs (mainly in FORTRAN, but some in COBOL) for a wide range of applications (from text handling to curve fitting) using data from an equally wide range (from pig-feeding trials to process monitoring). The Laboratory has a Harris 4 computer, using a virtual toentory operating. system and supporting to time sharing terminals, an analogue to digital converter, and acting as a RJE terminal to a 360/65.

Qualifications: BSc Honours Mathemarics or BSc Honours in a Scientific Discipline (could be Computer Science) with demonstrable mathematical skills. Training will be given as necessary.

SYSTEMS ANALYST

(Instrumental Data Acquisition) £4,000-£6,000 (Ref CH-2[1M)

Thuks: 1. To be the primary contact in our Computer Section for existing and future users of data

acquisit ion systems in the laboratory.

2. To investigate the feasibility of a computer solution to data-handling problems in the laboratory, and where necessary to specify a computer solution to deal with the problem. Qualifications: HSc Honours Physics, Electrical or Electronic Engineering is required together with several years experience of data acquisition from instruments. Previous of systems analysis would be a definite advantage.

Colworth Laboratory: Colworth Laboratory is a large, modern, very comprehensively equipped Food R&D centre servicing Unilever Companies in the UK (eg Batchelors, Birds-Eye, Walls) and abroad it is shuated in a pleasant country estate ten miles nonh of Bedford. Salaries and fringe benefits are at level expected of a large international company and includes assistance with moving expenses where appropriate. Phease write quoting reference number and giving details of career history to:

Miss J. Kenny,

Unilary Parento.

Unilever Research, Colworth Laboratory, Sharnbrook, Bedford MK44 ILQ.



Systems Programmer

Addlestone, Surrey

An opportunity exists for a Systems Programmer to join the system support team at our Computer Centre at Addlestone. The Centre provides 6.24 hour bureau service to the Company on its ICL 1900 computers running under George 3. The configuration comprises a 384K, 1906S and 6.128K, 1907. shortly to be upgraded to a 1906A, RJB, MOP and TP services are provided. Applicants should be fluent in a mejor programming language and have 1990 programming experience. A knowledge of George 3 would be an educated A 3 ablit system is worked. Salaries will be up to £4,500 plus 25 % shift allowants. Bacilities include a subsidised restaurant and an active Sports and Social Club.

Please write with bale dead. Please write with brief details or telephone for an application form: Puri Steiner, Recruitment Manager, Pleasey Radar, Addlessone; Weybridge (0932) 47282.

PLESSEY

and application of doto enhancement techniques in seismic prespecting. The work will be concorned with a general purpose system (UNIVAC 1110) and the TIMAP systems

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Incressingly, Data Logic'e turnkey
projecte involve muttiple, eeparated

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Toadvise cliente on the creation of upgrade of dalabeses end to assist Data Logic teame in the design of refrievel systems, Projects will involve both mainframe and standalars. slandslone minicomputer

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For consultency and Implementation projecte, with e bias towarde large IC L 2900 modele. Applications will include detebase systems and communications networks. Extensive knowledge is. required of herdwere cepeblilty, operating ayateme and etandard eottware. The scope tor epplication. of this knowledge end for cereer

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Principally for reel time

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For design and development of eyetame incorporating cuatom-built devices such as interfaces and terminals, with an emphasis on the use of microprocessors. Applicants should have a degree :

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If necessary, he or she will be required to strend a two week ICL Basic Programments of System Tea at the end of January, 1978.

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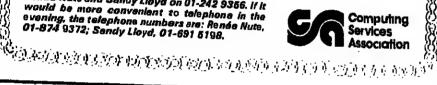
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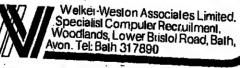
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Ashford, Middx.

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The Department operates on a bureau/consultancy basis and is divided into multi-disciplined project teams servicing the central functions and operating divisions of the Company. There is considerable pressure on the Department to provide a professional solution to a wide range of business problems. It is, therefore, essential that Analysts and Programmers are technically competent and able to work within cost and time budgets. To service the Company's needs we are looking for the following people:-

Project Leaders -Salary £5,250-£5,500

* About 7 years experience in systems and programming.

- * Responsible for major systems development from feasibility study Through to implementation.
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- Senior Systems Analysts

-Salary: £4,750-£5,000

- * About 5 years experience in systems and programming.
- * Involved on major systems development from feasibility study through
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Lead Programmer Analysts -Salary: £5,100-£5,400

- * About 5 years programming experience.
- * Possess practical experience of the design and use of database
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The position is available at both senior or junior levels, the appropriate position being offered according to qualifications and experience. * To develop and maintain systems on Datapoint 2200/5500's.

* The ideal candidate should have Datashare experience but any solid datapoint programming expertise would be an asset.

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4

DUBLIN

ASSISTANT DIRECTOR and SENIOR SYSTEMS ANALYST

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The Board is implementing computer systities throughout the Republic of Ireland.

Candidates must have a high standard of education and should have a minimum of live years' experience in data processing including at least two years experience of leading project teams. A good knowledge of systems techniques and an understanding of programming concepts will be experted. Age: 25-45 years.

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HARWELL

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The County currently tuns an ICL 1904S (1924) computer due to be reptaced in mid-1978 by an ICL 2976r Access to the County's computer is via video terminals.

Application forms can be obtained from the County Engyles, and Gurveyor, County Hall, Northallerton, North Yorkship, 8AH, to whom they should be returned by 2th December 1977

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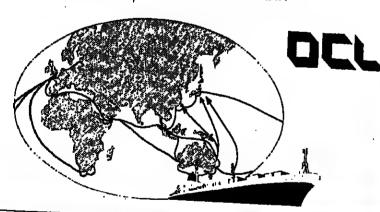
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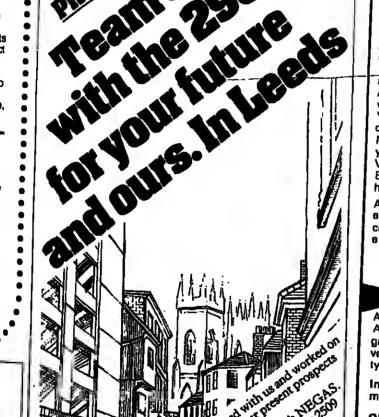
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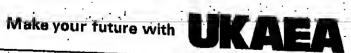
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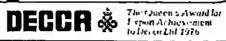
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Recorder IN the wake of its Model 715

ow cost dats cassette recorder. etandard plano key type switches with which to man the added focility in the read and write modes of remote start and atop. This is done via a

example, permit the assembly of a 1K byte program in 10

minutes compared to a time of one hour with a 10 chps paper

tape system, claimed Mogul. It consists of a dual disc drive

ROM set that contains a disc

utility and monitor program

together with a system diskette which holds the assembler.

nemory save and demon-

teletype signal;
A "husy" signni is dote via a
labla which inhibits dota being
sduitted or transmitted until
life recorder has ottained its

nnrmal operating speed.

Compable of being connected via the normal Teletype, CCTTT V24 or 5V TTL logic interfeces provided by computer manufacturers, the Modol 716 utilises either standard audio or 300 feet computer availa circuster feet. either standard audio or 300 leet computer grade cossettes bith having brenkoul lugs for uverwrite protection.

The maximum data rate to said to be 2.4K baud and the Model 718 costs (450 ft.). London in one off quantities with delivery dates heing four weaks from the receipt of orders.

MS instruments Ltd (CV).

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A PAPER shredding unit, tha Model CC9, which cuts across the paper as well as parallel with its length is now available from Ofrex Ltd of London.

The CC9 produces I mm × 10 pany. His capability is then metched with the requirements of existing iob-assignments, and necessery appropriete potentiel employers, agreed with the can-

The CC9 has been added to the cxising Ofrex Fordlograph shreddar range and is a development of the Fordlohred 9 unlike cost which is implied by proached. Typical charges for this which employs parallel culting each recruitment exercise using this medium.
The question must be esked what cen e rethe overheating problems pre-viously associated with cross cruitment agency do and/or what does it heve available

Other CC9 features include a that one could not do botter volved. or make evallable oneself? It is not simply a matter uf deciding whether or not to utilige the services of a recrultment egency; by far the more important ques-

The CC9 is a table top unit weighing 39.8 Kg (140 lbs) and tinn is, which one? A truly effective agency measuring 448 nunt (1715 inches) wide, 453 mm 118 inches) deep for the recruitment of solos and merketing personnel. and 223 mm (84 inches) high. It can be supplied with its own mobile trolley.

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to alternetive methods of

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ordinatiun of recruitment Disc system NOW . ovallable from Mogul

PRODUCT

nm paper chips which, accord-

ng to Ofrex, ensures security of il discarded documents.

According to Ofrex, the

design of the CC9 eliminates

218 mm (815 Inch) throat which can accept five or six A4 sheets

in one pass when working ot o rate uf 60 feet of paper per

98 feet (18.3 metres), per min-

shredding through

rom Offrex Ltd of London.

The CCB produces I mm × 10 come a reflex sction. No

NOTES

Paper

5. Integration of advertising with company. wide public reletions ac-6. in-depth experience of

seles menegement end selling within the computer industry: and 7. meaningful knowledge of the marketplace re-

lated to a particular tob Most recruitment agencles cen satisfy the demends when it comes to the location and selection of seles end marketing personnel

there are very few orgen-Isations who are equipped to offer such a comprehensive gervice. editor, diagnostica, tape to dia-kette transfer, diskette copy then four egenciea who

might etend e chence of strailon programs.

Mogul Electronics Ltd (CW),
273 High Street, Epping, Essex,
CM18 4DA. Tel: Epping (78) meeting this qualification. So how do you discover which le which?

In my opinion the best opproach is to invite a election of those egencles purporting to be involved in recruiting salesmen to die-cuss your business situetion and discover what reni exknowing what snleamer look like and what reel

knowledge they have of your marketplace.
Those who conv at least as well as you,

ongoing staff requirements second There are besically three third forms of recruitment. Agency, Where records of known "live" candidates

are matched with "job-orders", The initial action le taken by the aalesman who makes known his desire to change jobs Hi

didate, are niso

type of service vary from 15% to 20% of the salesman's guaranteed income for the first year of employment, depending or the level of income in-

Advertising: where the appropriate advertisement is creeted, response is filt. ered and "Inng list" applicants interviewed so that the cilcut's first involvement after the lu Itiation stnge is the inter-viewing of "short-list"

candidates. Typicel charges for this service are similar to egency fees, but also include the cost of advertising, artwork, the production of printing plates and other related ex-

Head-hunting": This method of recruiting is obvious, but it is usually limited to clearly identifiable people In very specific jobs. Consequently, salesmen are seldom involved in this approach, it is more typically senior ma-

nagement and specialist technicians. Charges can range from 25% to (I have heard it said!) over 50% of the first

year's basic salery. Some egencies will give lther a refund or a freereplacement in circumtences where e candidate leaves his job soon efter joining. This "gueranteed" period is typically between one to three months.

For the first few weeks li is difficult for the sales menager to know if his newly acquired selesman is a good

buy or a goodbye. However, if he's got his counselling and appraisal right he should soon see the early werning signs of the

He should elso be awarc of the implications of the Employment Protection

in other words the period of eveluation should be a maximum of three months. My reaction is that total

replacement is too extreme. I would much rather see a that they would do the job sotion which keeps the pressure on both the sales should be given a thorough manager, and the re-understanding of the company's aoles and marketing right!" Say, 75% within the strategy and be retained for first month, 50% within the second and 25% within the

TRADER

Puzzle answer

desire to complete a lob of saked to a lace-to list's and the additional store interview by an appropriate consultant who is responsible for propriate consultant who is responsible for propriate consultant who is responsible for propriate and the local saked and the loca

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